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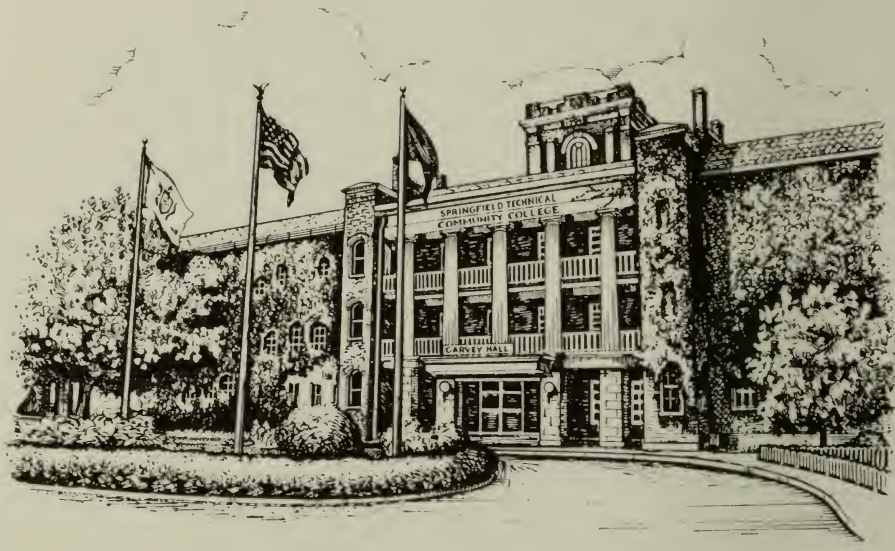
SPRINGFIELD TECHNICAL COMMUNITY COLLEGE

1989-90 CATALOG

Springfield Technical Community College
One Armory Square
Springfield, Massachusetts 01105
(413) 781-7822



STATEMENT OF NONDISCRIMINATION

Springfield Technical Community College is an Affirmative Action/Equal Opportunity Employer, and does not discriminate on the basis of race, color, national origin, sex or handicap status in its educational programs in admission to, access to, treatment in, or employment in its programs or activities as required by Title VI, Civil Rights Act of 1964; Title IX, Educational Amendments of 1972; and Section 504 of the Rehabilitation Act of 1973; and regulations promulgated thereunder 34 C.F.R. Part 100 (Title VI), 34 C.F.R. Part 104 (Section 504) 34 C.F.R. Part 106 (Title IX). All inquiries should be directed to the College's Affirmative Action Officer, who is also the Title IX and Section 504 Coordinator.

INFORMATION SUBJECT TO CHANGE

This catalog is published as a convenient source of information for prospective students and for the general public. To allow for unforeseen developments that may occur along budgetary or other lines, the College reserves the right to add or delete courses and programs or to revise tuition fees and insurance requirements described herein.

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ACADEMIC CALENDAR

WEEK	DATES		SPRING SEMESTER 1989
(The following dates are tentative; these calendars are subject to change without notice.)			
1	Jan. 23 - 27	Mon., Jan. 23	**FACULTY MEETING-9:00 A.M.** Division/Department Meetings
		Tues., Jan. 24	***REGISTRATION DAY*** 8:00 A.M.-3:00 P.M. DROP/ADD BEGINS
		Wed., Jan 25 Tues.-Fri. Jan. 23 - 27	Classes begin 7:30 A.M. Students meet with advisors
		Fri., 27	**DROP/ADD ENDS**
2	Jan. 30 - Feb. 3		
3	Feb. 6 - 10		
4	Feb. 13 - 17		
5	Feb. 20 - 24	Mon., Feb. 20	**WASHINGTON'S BIRTHDAY-NO CLASSES**
		Wed., Feb. 23	**CLASSES FOLLOW A *MONDAY* SCHEDULE**
6	Feb. 27 - Mar. 3		
7	Mar. 6 - 10		
8	Mar. 13 - 17	Thurs., Mar. 16	**MID-SEMESTER GRADES DUE IN REGISTRAR'S OFFICE**
		Fri., Mar. 17	**EVACUATION DAY-NO CLASSES**
	Mar. 20 - 24	Mon.-Fri. Mar. 20 - 24	**MID-SEMESTER BREAK-NO CLASSES**
9	Mar. 27 - 31	Wed., Mar. 29	Distribution of mid-semester grades and fall, 1989 pre-registration booklet to students.
10	Apr. 3 - 7	Wed., Apr. 5	**Fall, 1989 pre-registration begins** Students meet with faculty advisors and complete pre-registration in the Registrar's Office
11	Apr. 10 - 14	Fri., Apr. 14	**Last day to pre-register for fall, 1989 Semester**
12	Apr. 17 - 21	Mon., Apr. 17	**PATRIOTS' DAY-NO CLASSES**
		Thurs., Apr. 20	**CLASSES FOLLOW A *MONDAY* SCHEDULE**
		Fri., Apr. 21	**Last day to withdraw from a course without a penalty**
13	Apr. 24 - 28		
14	May 1 - 5		
15	May 8 - 12	Fri., May 12	**LAST DAY OF CLASSES**
16	May 15 - 19	Mon.-Fri. May 15 - 19	**FINAL EXAMS**
	May 22	Mon., May 22	**FINAL GRADES DUE IN REGISTRAR'S OFFICE**
	To be announced		**HONORS CONVOCATION**
	To be announced		**COMMENCEMENT**

WEEK	DATES		FALL SEMESTER 1989
	Aug. 28-Sept. 1	Thurs., Aug. 31	**FACULTY MEETING/ PROFESSIONAL DAY - 9:00 A.M.**
1	Sept. 4 - 8	Mon., Sept. 4	**LABOR DAY - HOLIDAY**
		Tues., Sept. 5	***REGISTRATION DAY*** 8:00 A.M.-3:00 P.M. **DROP/ADD BEGINS** Division/Department Meetings
		Wed., Sept. 6	***CLASSES BEGIN*** 7:30 A.M.
		Tues. - Fri. Sept. 5 - 8	Students meet with advisors
		Fri., Sept. 8	**DROP/ADD ENDS**
2	Sept. 11 - 15		
3	Sept. 18 - 22		
4	Sept. 25 - 29		
5	Oct. 2 - 6		
6	Oct. 9 - 13	Mon., Oct. 9	**COLUMBUS DAY-NO CLASSES**
		Wed., Oct. 11	**CLASSES FOLLOW A MONDAY SCHEDULE**
7	Oct. 16 - 20		
8	Oct. 23 - 27	Fri., Oct. 27	**MID-SEMESTER GRADES DUE IN REGISTRAR'S OFFICE**
9	Oct. 30 - Nov. 3		
10	Nov. 6 - 10	Mon., Nov. 6	Distribution of mid-semester grades and spring 1990 registration booklet to students
		Thurs., Nov. 9	**SPRING, 1990 PRE-REGISTRATION BEGINS** Students meet with faculty advisors and complete pre-registration in the Registrar's Office
		Mon., Nov. 13	**VETERAN'S DAY OBSERVED; NO CLASSES**
11	Nov. 13 - 17	Sun., Nov. 19	**ALPHA NU OMEGA INDUCTION CEREMONY**
12	Nov. 20 - 24	Wed., Nov. 22	**Last day to pre-register for spring, 1990 semester**
		Thurs.-Fri. Nov., 23 - 24	**THANKSGIVING RECESS-NO CLASSES**
13	Nov. 27 - Dec. 1		
14	Dec. 4 - 8		
15	Dec. 11 - 15		
16	Dec. 18 - 22	Mon., Dec. 18	**LAST DAY OF CLASSES**
		Tues.-Fri. Dec. 19 - 22	**FINAL EXAMS**
		Wed., Dec. 27	**FINAL GRADES DUE IN REGISTRAR'S OFFICE**
	Dec. 24-Jan. 22		**SEMESTER BREAK**

WEEK	DATES		SPRING SEMESTER 1990
1	Jan. 22 - 26	Mon., Jan. 22	**FACULTY MEETING-9:00 A.M.** Division/Department Meetings
		Tues., Jan. 23	***REGISTRATION DAY*** 8:00 A.M.-3:00 P.M. DROP/ADD BEGINS
		Wed., Jan 24 Tues.-Fri. Jan. 23 - 26	Classes begin 7:30 A.M. Students meet with advisors
		Fri., Jan. 26	**DROP/ADD ENDS**
2	Jan. 29 - Feb. 2		
3	Feb. 5 - 9		
4	Feb. 12 - 16		
5	Feb. 19 - 23	Mon., Feb. 19	**WASHINGTON'S BIRTHDAY-NO CLASSES**
		Wed., Feb. 21	**CLASSES FOLLOW A *MONDAY* SCHEDULE**
6	Feb. 26-Mar. 2		
7	Mar. 5 - 9		
8	Mar. 12 - 16	Thurs., Mar. 15	**MID-SEMESTER GRADES DUE IN REGISTRAR'S OFFICE**
	Mar. 12 - 16	Fri., Mar. 16	**EVACUATION DAY-NO CLASSES**
	Mar. 19 - 23	Mon.-Fri. Mar. 19 - 23	**MID-SEMESTER BREAK-NO CLASSES**
9	Mar. 26 - 30	Wed., Mar. 28	Distribution of mid-semester grades and fall, 1990 pre-registration booklet to students.
10	Apr. 2 - 6	Wed., Apr. 4	**Fall, 1990 pre-registration begins** Students meet with faculty advisors and complete pre-registration in the Registrar's Office
11	Apr. 9 - 13	Fri., Apr. 13	**Last day to pre-register for fall, 1989 semester**
12	Apr. 16 - 20	Mon., Apr. 16	**PATRIOTS' DAY-NO CLASSES**
		Thurs., Apr. 19	**CLASSES FOLLOW A *MONDAY* SCHEDULE**
		Fri., Apr. 20	**Last day to withdraw from a course without penalty**
13	Apr. 23 - 27		
14	April 30-May 4		
15	May 7 - 11	Fri., May 11	**LAST DAY OF CLASSES**
16	May 14 - 18	Mon.-Fri. May 14 - 18	**FINAL EXAMS**
	May 21	Mon., May 21	**FINAL GRADES DUE IN REGISTRAR'S OFFICE**
	May 31	Thurs., May 31	**HONORS CONVOCATION**
	June 2	Sat., June 2	**COMMENCEMENT**

President's Message

Welcome to Springfield Technical Community College. In the College's 23rd year, we are proud to look back on its growth and achievements, as the most comprehensive institution in the Massachusetts community college system. STCC offers 65 different degree or certificate programs, to nearly 7,000 students in Day and Evening divisions. We look forward to a period of further growth and opportunities to serve you. STCC offers computer hardware facilities of university level quality; and a seven-floor Biological Sciences building, gymnasium, and theatre complex was completed last year.

The College has a long-standing commitment to provide educational programs of the highest quality. Our major strength lies in our ability to attract faculty and staff committed to the goals and objectives of the College and dedicated to responding to the needs of our students through personalized attention. The College's faculty combine a high degree of theoretical knowledge with practical experience in their field. Our staff are dedicated to making your stay with us a rewarding and enjoyable experience.

This, combined with the diversity of our program offerings, our central location on the beautiful and historic Springfield Armory Grounds, and our professional commitment to maintain excellence, combine to make Springfield Technical Community College the finest institution of its kind. An added dimension to enrich your college years are extracurricular activities such as athletics, drama society, and a wide variety of student organizations.

We are prepared to provide you with the educational background and support services so vital in today's fast-paced society.

Once you become a part of the STCC family, the relationship does not end when you graduate. As an alumnus, you have ready access to Placement services, the STCC Library, and the Counseling Center, as well as becoming a member of the STCC Alumni Association. Courses and workshops offered by the Division of Continuing Education are designed to help you keep pace with the rapidly-changing skills and knowledge in your field.

We are *your* community college, and we are here to serve your needs.

Andrew M. Scibelli,
President

General Information

THE COLLEGE

HISTORY

In 1947 the State Board of Education determined that the Commonwealth should establish a system of community colleges, and in 1958, the Massachusetts Board of Regional Community Colleges was created to oversee the master plan for the development of the community college system.

The concept of creating a post-secondary technical school in Springfield originated in 1964 when the City established Springfield Technical Institute. The demand for educational services soon outstripped the facilities, and a solution was found when the Armory was scheduled to be deactivated. A community college was formed, under the jurisdiction of the Massachusetts Board of Regional Community Colleges, and in the fall of 1967 the first class of the new college began at the Armory Square campus. On March 1, 1981, the Massachusetts Board of Regents of Higher Education assumed responsibility for all of the Commonwealth's public institutions of higher education. The Springfield Technical Community College Board of Trustees also assumed its responsibilities on March 1, 1981 and, together with the Board of Regents, is the governing body of the College, replacing the STCC Advisory Board and the Massachusetts Board of Regional Community Colleges.

An initial enrollment of 400 students and a faculty of 20 began what is now one of the largest and most comprehensive community colleges in the Commonwealth. The change from a city technical institute to a degree-granting community college resulted in STCC providing thousands of trained graduates for the career opportunities that exist in the Greater Springfield community.

The thirty-four acre campus contains a blend of the old and new. New academic facilities as well as historic buildings exist on this National Historic Landmark founded by George Washington in 1789. New facilities for the Humanities, Physical Sciences, Nursing, Health and Human Services, and Engineering Technologies are surrounded by a distinctive iron fence cast in the mid-1800's from old cannon.

STCC is proud of its brief but impressive history, and the College will continue to dedicate itself to serving the educational and cultural needs of the citizens of the Greater Springfield community and the Commonwealth at large.

PHILOSOPHY

Springfield Technical Community College, founded in 1967, is a co-educational, publicly supported institution. After close to 25 years of growth and development, the College reaffirms its goal of combining education for a career with education for life. The College maintains an "open door" admissions policy, which gives access to higher education to a student body with diverse needs and goals.

We believe that it is the mission of the College to assist students in the choice, and preparation for, careers; to encourage performance to meet the highest professional standards; to provide opportunities for continuing education and professional

enrichment. At the same time, we attempt to develop and foster an understanding of scholarship through the Liberal Arts.

Education for life is accomplished through efforts to develop in students the capacity for critical thinking, the ability to communicate effectively, an appreciation of the arts and humanities, and an understanding of the technological basis of modern society. The College recognizes the need for students to deal with the rapid pace of change and such global concerns as those related to technology, environment, population, and peace.

Springfield Technical Community College aims to assist in the development of people who are educated in mind, responsive to civic and social obligations, capable of adjusting to change, and able to respond creatively to the demands of their chosen careers.

GOALS

1. To provide access to higher education for all, with special attention to the needs of the economically and educationally disadvantaged. The College pays particular attention to those whose previous educational experiences have been unsatisfactory, by providing a supportive learning environment which instills in our students renewed confidence in their capabilities.

2. To offer the educational programs necessary to meet the current anticipated needs of our students, the community, and the Commonwealth, including:

   (a) Developmental programs to upgrade student skills in mathematics, communications, and science to the college entry level.

   (b) Career programs of one or two years' duration, leading to meaningful employment of our graduates in health, technical, business, and service occupations.

   (c) Cooperative Educational experiences fostering student personal growth and unifying student academic and career goals with the employment needs of the local community.

   (d) Courses of study which parallel the first two years of collegiate study in liberal arts, engineering, computer information systems, and science.

   (e) Continuing Education credit and non-credit courses offered at convenient hours and locations.

3. To maintain the highest possible standards of academic achievement and performance.

4. To insure the continuing quality and relevance of our programs.

5. To build and maintain a modern physical plant.

OBJECTIVES

1. To continue to serve this geographic region in terms of the educational needs of its people, as well as the educational needs of business, industry, and health services, government and the community at large.

2. To provide equal access to higher education by maintaining an open-door admissions policy.

3. To develop and maintain itself as a comprehensive, multi-purpose institution offering quality, low-cost, collegiate level courses and programs, with its major thrust in the career oriented programs. This is accomplished by offering:

(a) A broad range of technological, occupational, and general education courses for both credit and non-credit;

(b) A program parallel to the first two years of collegiate study in liberal arts, engineering, computer information systems, and science;

(c) Extended education to students in those areas where programs beyond a two-year duration are not readily available;

(d) A program of continuing education, offering a variety of courses and degree granting programs at convenient hours and locations;

(e) Ready access to the professional and physical resources of the College to representatives of business/industry and community organizations for the development and presentation of seminars, short courses, and conferences which meet the training and educational needs of these groups.

4. To provide to both regular and prospective students the testing, guidance, and counseling services of the College in such areas as:

(a) choice of technical field of occupation;

(b) choice of academic courses and programs;

(c) occupational planning and placement;

(d) transfer to other institutions of higher learning;

(e) resolution of personal problems which tend to inhibit or interfere with the student's educational progress.

5. To commit the College to excellence in teaching as its most vital work by:

(a) selecting faculty and staff members who bring both knowledge and a desire to work with community college students;

(b) encouraging and assisting in the professional growth of faculty and staff members;

(c) promoting innovation in educational practices and policies;

(d) providing an intellectual environment which will promote the development of social consciousness and maturity in students through academics, community involvement, and cultural events.

6. To promote educational and cultural services to the community and region.

7. To develop public interest and support for this institution through a public relations program involving the efforts of the College staff, the students, and the office of Public Relations.

8. To develop and maintain an on-going communication exchange with other educational institutions in the region, the state, and the nation. This includes high schools, community colleges and senior colleges, and various boards and agencies, both private and public.

9. To promote an educational dialogue among students, faculty, administrators, and governing and advisory boards in order to enhance further the objectives of the College.

10. To undertake a periodic review of the College on a planned and systematic basis as to its objectives, policies, organizations, and long and short range plans. The purpose of such a review is to avoid rigidity and stagnation and to provide for change and progress in the curriculum.

11. To identify the employment needs of the community and to provide, as rapidly as possible, highly skilled people to meet these needs; also, in collaboration with

business, political, and industrial leaders, to establish programs to attract new industries to the area by providing personnel and training for them.

12. To continue to implement the affirmative action plan of the College with the goal of increasing the representation of qualified minority, female, and handicapped persons as students and as members of the institution's faculty and staff at all levels.

ACCREDITATION

Springfield Technical Community College is accredited by the New England Association of Schools and Colleges, Inc., a non- governmental, nationally recognized organization whose affiliated institutions include elementary schools through collegiate institutions offering post-graduate education.

Accreditation of an institution by the New England Association indicates that it meets or exceeds criteria for the assessment of institutional quality periodically applied through a peer group review process. An accredited school or college is one which has available the necessary resources to achieve its stated purposes through appropriate educational programs, is substantially doing so, and gives reasonable evidence that it will continue to do so in the foreseeable future. Institutional integrity is also addressed through accreditation.

Accreditation by the New England Association is not partial, but applies to the institution as a whole. As such, it is not a guarantee of the quality of every course or program offered, or the competence of individual graduates. Rather, it provides reasonable assurance about the quality of opportunities available to students who attend the institution.

Inquiries regarding the status of an institution's accreditation by the New England Association should be directed to the administrative staff of the school or college. Individuals may also contact the Association:

Commission on Higher Education
New England Association of Schools and Colleges
The Sanborn House, 15 High Street
Winchester, Massachusetts 01890
(617) 729-6762

Springfield Technical Community College has been awarded the maximum accreditation period of ten years.

The College is approved by the Board of Collegiate Authority, Massachusetts Department of Education; by the Massachusetts Rehabilitation Commission; by the United States Office of Education for listing in the Directory of Higher Education; for the National Defense Student Loan Program; for federal assistance from any unit of the Department of Health, Education, and Welfare; by the United States Veterans Administration for the admission of veterans and war orphans; by the United States Department of Justice as a place of study for non-immigrant students; and by the United States Internal Revenue Service as a non-profit organization.

Individual programs in the Health/Human Services Division are accredited as follows:

Dental Assistant: Commission on Dental Accreditation of the American Dental Association

Dental Hygiene: Commission on Dental Accreditation of the American Dental Association

Medical Assistant: Committee on Allied Health Education and Accreditation of the American Medical Association

Medical Laboratory Technician: Committee on Allied Health Education and Accreditation of the American Medical Assoc.; National Accrediting Agency for Clinical Laboratory Sciences

Nuclear Medicine Technology: Committee on Allied Health Education and Accreditation of the American Medical Association

Nursing: National League for Nursing; approved by the Massachusetts Board of Registration in Nursing

Physical Therapist Assistant: American Physical Therapy Association

Radiation Therapy Technology: Joint Review Committee on Education in Radiologic Technology

Radiologic Technology: Committee on Allied Health Education and Accreditation of the American Medical Association

Respiratory Therapy: Joint Review Committee of Respiratory Therapy Education, which cooperates with the Committee on Allied Health Education and Accreditation of the American Medical Association

Surgical Technology: Joint Review Committee on Education for the Surgical Technologist of the Committee on Allied Health Education and Accreditation of the American Medical Assoc.

COOPERATING COLLEGES OF GREATER SPRINGFIELD

The Cooperating Colleges of Greater Springfield, Inc. is an educational consortium composed of the eight public and private colleges in the Greater Springfield area: American International College, Bay Path Junior College, Elms College, Holyoke Community College, Springfield College, Springfield Technical Community College, Western New England College, and Westfield State College. Founded in 1971, the organization fosters the sharing of programs, talents, and facilities, to bring to this area the educational resources of a university while retaining the initiative and vitality of independent institutions.

Through cooperative planning at the presidential level and the functioning of committees from different administrative levels, CCGS aims:

* to enrich the educational offerings, cultural events, and social activities of the colleges,
* to offer a wide variety of programs and fields of study to students at each insititution,
* to effect fiscal economies and to eliminate unnecessary duplication through joint planning, and
* to develop into an economic and educational resource to the Greater Springfield community.

Examples of the different levels on which the colleges meet and cooperate are committees composed of the presidents, the deans of faculty, the deans of students, the librarians, the public relations directors, and the student activities directors, among others.

I. *Presidents*

The presidents speak with a united voice for higher education in the Greater Springfield area through their monthly meetings, and support area-wide projects for community development, through such organizations as the Education Opportunity Center and the Chamber of Commerce. The presidents recently sponsored an evening at Symphony Hall in recognition of the 350th anniversary of

higher education in America, with Harvard President Derek Bok as the main speaker.

II. *Academic Exchange*

Cross registration has been established so that in each semester or term, any full-time CCGS student may enroll at another college for any regular-term course that is not offered at his or her own institution, as long as the desired course is not over-subscibed. No payment of additional tuition is required. Study at the host insitution is scheduled as part of the student's normal credit load, and all records for such academic achievement are kept by the registrar of the student's home college. This cross-registration includes an Army ROTC program. The Academic Deans also sponsor faculty development conferences with nationally-prominent speakers.

III. *Libraries*

All students and faculty of CCGS colleges have immediate access to the full library collections of all eight colleges, numbering 979,200 volumes at last count, thus greatly expanding the opportunities for independent study and research. The Co-operating Libraries of Greater Springfield also include the Springfield City Library, the Western New England Law School Library, and the Baystate Medical Center Library. The CLGS librarians have compiled a union list of serials, listing periodicals available in all libraries. For futher information, please see the section in this catalog on The Library (page 41).

IV. *Student Activities*

The Student Activities directors meet to discuss jointly sponsored educational, cultural, and social programs. Each year the directors organize a CCGS student art exhibit, featuring the best paintings of students in the CCGS colleges. The member colleges open some of their extracurricular events to all CCGS students. Events scheduled at individual institutions may be publicized among the member colleges; in this way, programs which a single institution might not be able to attract are made available.

Admissions Information

ADMISSION

Springfield Technical Community College encourages applications without regard to age, sex, race, religion or national origin. Admission to the College requires a high school diploma or its equivalent. A student who does not have a high school diploma or equivalent may only be admitted if he or she has the ability to benefit from the training offered by STCC, at the discretion of the Dean of Admissions. This in no way guarantees such a student entrance into a specific academic program.

Every consideration will be given to any applicant who possesses a diploma without regard to the curriculum pursued in high school. The applicant should take note, however, of the numerous requirements demanded by specialized college programs (see Prerequisite page).

A high school equivalency diploma (General Education Development Test-GED) may be earned by passing tests administered by the College several times each

year. Further information about the tests may be obtained from the Division of Continuing Education.

Students are advised to study carefully special requirements that are established by the program into which they seek admission.

Some programs of the College require specific minimum scores to be achieved by the applicant on the Scholastic Aptitude Test (SAT) of the College Entrance Examination Board. Admissions Telephone Number: 781-7822, Extension 3855.

STATEMENT ON RACIAL, ETHNIC, AND RELIGIOUS HATRED

The All-College Council of Springfield Technical Community College condemns any deliberate action which promotes racial, ethnic, or religious hatred. We believe that such hatred undermines the goals of education and efforts to build a more just and humane society.

RE-ADMISSION

Any student who has been dismissed for academic deficiencies may be re-admitted by bringing his cumulative quality point average (CQPA) up to the minimum standard required by the College (See Academic Standing). Any student who has attended summer or evening school and has raised his CQPA to the acceptable level, thereupon should reapply formally to the Dean of Admissions.

APPLICATION PROCEDURE

Students desiring admission to the College may obtain an application by writing to the Dean of Admissions, Springfield Technical Community College, One Armory Square, Springfield, MA 01105. Students attending high schools in the Greater Springfield area may expedite the application process by asking their guidance departments for an application form. Applications should be filled out completely and returned to the STCC Cashier's Office as soon as possible. This application must be accompanied by a non-refundable application fee in the amount of $10 for in-state students or $35 for all out-of-state or foreign students in check or money order payable to STCC. This is a required fee which goes directly into the General Fund of the Commonwealth. It is each applicant's responsibility to insure that a transcript of his/her high school grades is sent to the STCC Admissions Office. The Admissions Office cannot accept the responsibility for obtaining transcripts. Any student who has been absent from STCC for seven years or more should re-submit transcripts and other credentials deemed essential by the Admissions Office.

Springfield Technical Community College maintains an open-door admissions policy, for many programs. However, the rapidly increasing number of applicants and the requirements of competitive programs necessitate early application for admission. Applicants should have their applications on file as early as possible, preferably before January 31 for any given academic year. Applications received after January will be processed, and acceptance to desired programs will be based on available space.

In addition, transcripts from all colleges previously attended must be submitted to the College. Applications cannot be processed until all transcripts are received.

APPOINTMENTS FOR INTERVIEWS

Although interviews are not required, applicants are encouraged to seek help with career choices by exploring various programs with the counselors and staff. Interviews and tours may be arranged by phoning or by writing the Admissions Office for an appointment; Telephone 781-7822, Extension 3855.

TRANSFER INTO STCC

Applicants who have had previous college experience must submit all college transcripts whether or not they are seeking transfer credit. In order to meet the residency requirements, a minimum of 15 credits must be taken at STCC to receive a degree. The remainder may be taken at other institutions. Only courses in which the student has received a "C" grade or better and which are similar in content to those required in the student's program at STCC will be accepted. Transfer applications are usually accepted for admission to the College in both September and January; however, the number of programs open for admission in January is limited. Please contact the Admissions Office for more information.

CLEP AND CHALLENGE EXAMINATIONS—ADVANCED PLACEMENT

The College may award up to 45 credits to persons who successfully complete examinations in specific subject areas given at the College under the aegis of the College Level Examination Program (CLEP), or a series of Challenge Exams developed by the College.

The CLEP subject examinations cover a wide range of disciplines and allow applicants to demonstrate proficiency in areas where they have acquired knowledge through non-traditional learning situations. Credits received by CLEP examinations allow the College to waive introductory courses which the student would normally be required to take.

The College has produced challenge examinations in subject-matter areas not found in the CLEP battery so that people who wish to demonstrate competence in specialized areas may do so. Students who feel that they possess above average competence in a subject area should not hesitate to consult the Dean of Admissions for further information, consultation and testing.

High scores on the Advanced Placement Examination of the College Entrance Examination Board will be evaluated by Admissions. Specific scores as approved by the College may allow the student applicant to be exempted from certain courses.

PLACEMENT TESTING

As part of the Admissions program at Springfield Technical Community College, a Placement Testing Program is administered by the Individualized Learning Center (Building 17, Room 425). Placement tests in mathematics, English and reading comprehension provide information for assigning students to appropriate courses. Tests in mathematics and English are required for most incoming freshmen. Placement testing is required before registering for classes.

OUT-OF-STATE AND FOREIGN STUDENT INFORMATION

Because of the lengthened processing time, out-of-state residents, as well as all non-United States residents, must have all application materials complete and on file with the STCC Admissions Office prior to August 1 in order to be considered

for admission to the Fall semester (December 1 for admission to the Spring semester).

Prospective students who are neither United States citizens nor in the United States on permanent visas must have taken the Test of English as a Foreign Language and have the test score entered as a part of their application for admission. Those who score below 525 on the TOEFL may enroll only for classes entitled English as a Second Language (ESL).

Minimum Prerequisites for Admission

PROGRAM	DEGREE OR CERT.	LICENSE AFFILIATION OR DESIGNATION POSSIBLE	MATH	SCIENCE	OTHER ACADEMIC AREA	ADD. REQ.
Automotive Technology	Degree		Alg 1	Physical		
Bio-Medical Instrumentation	Degree		Alg 2	Physical		
Business Administration	Degree		Alg 2*			
Accounting						
Finance	Degree		Alg 2*			
Management	Degree		Alg 2*			
Option: Small Business Management						
Marketing	De gree		Alg 2*			
General Business Transfer Compact Option:	Degree		Alg 2*			
Civil Engineering Tech.	Degree		Alg 2	Physical		
Computer Information Systems/Data Processing	Degree		Alg 2*			
Computer Maintenance Tech.	Degree		Alg 2 Trig.*	Physical		
Cosmetology	Cert.	National License				
Dental Assistant	Cert.	A.D.A.A. Nat'l Cert.	Alg 1	Bio & Lab, Typing		
Dental Hygiene	Degree	A.D.A. National Board N.E. Regional Board State Licensure	Geom. or Alg. 2	Bio/Chem & Labs		SAT
Drafting Tech.	Cert.		Alg 1	Physical		
Early Childhood Education	Degree	Nat'l Credential-Child Development Associate				
Electrical Technology	Degree		Alg 2	Physical		
Option: Robotics Technology	Degree		Alg 2	Physical		
Electronic Technology	Degree		Alg 2 Trig.	Physical		
Option: Microprocessing Technology	Degree		Alg 2 Trig.	Physical		
Engineering & Science Transfer	Degree		Alg 2	Chem/Physics		SAT
Option: Computer Science Transfer	Degree		Alg 2 Trig.	Chem/Physics		SAT
Option: Science Transfer	Degree		Alg 2 Trig.	Chem/Physics		SAT

PROGRAM	DEGREE OR CERT.	LICENSE AFFILIATION OR DESIGNATION POSSIBLE	MATH	SCIENCE	OTHER ACADEMIC AREA	ADD. REQ.
Environmental Technology	Degree	Certification	Alg 1	Chemistry*		
General Studies	Degree					
Graphic Arts Technology	Degree		Alg 1	Physical		
Option: Printing Mgmt.	Degree		Alg 1	Physical		
Option: Commercial Art	Degree		Alg 1	Physical		
Option: Printing Tech.	Degree		Alg 1	Physical		
Heat/Power/Air Conditioning	Degree Cert.	2nd Class Lic.	Alg 2	Physical*		
Human Services Associate	Degree	Nat'l Organization of Human Services Educators				
Option: Generalist						
Option: Gerontology	Degree	Nat'l Organization of Human Services Educators				
Landscape/Plant Science Tech.	Degree		Alg 1	Physical		
Laser Electro-Optics Tech.	Degree	Nat'l License	Alg 2 Trig.	Physical		
Law Enforcement/Crim. Justice	Degree					
Liberal Arts Transfer	Degree		Alg 2*			
Mechanical Technology						
Option: Industrial Eng. Tech.			Alg 2	Physical		
Option: Drafting & Design Tech.			Alg 2	Physical	Mech.Draw.	
Option: Metal Machining Tech.			Alg 2	Physical		
Medical Assistant	Degree	Nat'l Certificate		Biology	Typing	
Medical Laboratory Technician	Degree	Nat'l Registration	Alg 2	Biology/ Chemi stry		SAT
Nuclear Medicine Technology Advanced Standing Option	Degree	2 Nat'l Certifications	Alg 2	Bio/Chem.		SAT
Nursing	Degree	R.N.	Alg 2	Bio/Chem.		SAT
Physical Therapist Assistant	Degree		Alg 2	Bio/Chem.		SAT
Radiation Therapy Tech. Advanced Standing Option	Degree	Nat'l Certification	Alg 2	Bio/Chem.		SAT
Radiography	Degree	Nat'l Certification	Alg 2	Bio/Chem.		SAT
Respiratory Therapy	Degree		Alg 2	Bio/Chem.		
Surgical Technology	Degree	Nat'l Certification	Alg 2	Bio/Chem.		
Office Administration						
Clerical Office Assist.	Cert.					
Court Reporting	Degree	Shorthand Reporter, Mass. Short. Reporter Assoc.			College Typing 1&2*	
Executive Office	Degree	NSA, IWP, CPS Exam				
Administration						
Option: Intensive	Degree	NSA, IWP, CPS Exam				
Option: Non-Shorthand	Degree	NSA, IWP, CPS Exam				
Option: Bilingual Spanish	Degree	NSA, IWP, CPS Exam				
	Degree	NSA, IWP, CPS Exam				
Legal Office Admin.	Degree	NSA, IWP, NALS, CPS Exam PLS Exam				
Option: Intensive	Degree	NSA, IWP, NALS, CPS Exam PLS Exam				
Option: Non-Shorthand	Degree	NSA, IWP, CPS Exam PLS Exam				
Medical Office Admin.	Degree	NSA, IWP, NALS, CPS Exam				
Word Processing Management	Degree	IWP, NOMA, AMA				
Telecommunications Tech.	Degree					

* Not mandatory but recommended.

** This requirement may be fulfilled by successful completion of a typing test prior to enrollment.

Information as of September, 1988

Tuition and Fees

TUITION FEE

The Commonwealth of Massachusetts has set tuition at $384 per semester for State residents and $1,344 per semester for non-residents. Part-time students pay $32.00 per credit, while part-time non-resident students pay $112 per credit. The charge for auditing a course is set at $21 per course. Under an agreement among the New England States, students from any of the six states may attend college in another of the six states for $480.00 per semester, or $40.00 per credit, provided that the program desired is not available in their state or that the community college is closer than that in the home state.

Tuition and fees listed above are those as of September, 1988, and are subject to change without further notice.

COLLEGE SERVICE FEE

The College Service Fee is a non-refundable fee that is used to support student activities, health services, the Library, and graduation services.

PARKING FEE

Parking is limited on campus. Seniors may park on campus up to the limit of space. Parking fees will be established each year. Off-campus parking is available near the College for varying prices.

INSURANCE

The Commonwealth of Massachusetts requires each student to purchase through the College an accident insurance policy for a minimum charge. Optional plans under this policy may be purchased to provide hospitalization and twenty-four hour protection. Information about insurance will be sent to each admitted student. Students in Allied Health and Nursing are required to carry liability insurance in addition to the accident policy.

BOOKS AND SUPPLIES

Estimated costs for books and supplies vary by department, but $175 per semester should pay for most books and supplies. The College bookstore, operated by an outside concern, provides, at reasonable costs, many of the items that the student requires during his stay at STCC. Students are also required to pay a LIM fee for all courses (See Summary of Tuition and Fees).

PAYMENT OF BILLS

All tuition and fees are payable before each semester begins. If payment is to be made by agencies or scholarship programs, arrangements must be made in advance with the Financial Aid Office. All student financial obligations must be satisfied before a student is considered properly registered. No grades, transcripts, recommendations, degrees or other services will be provided to students with outstanding financial obligations.

TUITION REFUNDS

Tuition refunds are made only to those students who officially withdraw from the College. In order to do this, a student should personally, or by written communication, notify the Registrar of his decision. The College will, thereupon, refund a portion of the student's tuition according to the following schedule established by State regulations:

Withdrawal during first week	90 percent
Withdrawal after one week	70 percent
Withdrawal after three weeks	50 percent
Withdrawal after four weeks	No Refund

All refunds are made by the State Treasurer and take approximately six (6) weeks.

It should be noted that no provision is made for refunds of any other fees or charges except for tuition.

FOREIGN STUDENTS

Every student attending the College with a student visa must pay out-of-state tuition rates.

SUMMARY OF TUITION AND FEES

Tuition and fees listed below are those as of September, 1988, and are subject to change without further notice.

Application Fee for Mass. Residents (non-refundable)	$ 10
Application Fee for Out-Of-State Students (non-refundable)	35
Tuition for Mass. Residents (per semester)	384
Tuition (part-time) for Mass. Residents (per credit)*	32
Tuition for Out-Of-State Students (per semester)	1,344
Tuition for (part-time) Out-Of-State Students (per credit)*	112
Tuition Audit Course	21
College Service Fee (non-refundable, includes fees for support of Student Activities, Health Services, Library, and Graduation)	35
Test Fee	15
Late Registration Fee	5
Change of Course Fee/Per Course	3
Make-up Examination Fee	5
Student Insurance Required (approx.)	15
Supplemental 24 hour Accident & Sick Plan.	170
Student Liability Insurance (approx.) mandatory - Allied Health & Nursing Students	13.50
Transcripts (each)	1
Laboratory Instructional Materials Fee (per credit)	6
Schedule Reprint Fee	1
Mass PIRG (optional)	5

*12 credit hours per semester is the basis for full-time status.

SENIOR CITIZEN TUITION EXEMPTION

There shall be no charge for tuition to any person 60 years of age or over for attending Springfield Technical Community College provided that the College is not over-enrolled. However, certain fees may still be charged. This tuition exemption policy also applies to evening and summer courses provided that the course has enrolled a minimum of twelve regular paying students, and that there are seats available.

DETERMINATION OF RESIDENT STATUS

An in-state student is defined as an American citizen or a permanent alien resident who has lived in Massachusetts for 6 continuous months with the intention of living in the state indefinitely. (See the back of the application for place to sign, and information on how some other New England residents can qualify for reduced tuition.)

Tuition for out-of-state residents and foreign students is $1,344 per semester. Any person attending the College with a student visa must pay out-of-state tuition.

Financial Aid

The purpose of the Financial Aid Office is to provide financial assistance for those students who would otherwise be unable to attend college because of economic limitations. Based on an individual's financial need, the Financial Aid Office allocates funds to assist eligible students in paying for the cost of their college education. Assistance is provided through several sources and a student may receive a combination of more than one type of aid. The amount and type of aid a student receives is subject to allocations received by the College and governed by federal, state, and College regulations.

ELIGIBILITY REQUIREMENTS FOR RECEIVING FINANCIAL AID

The student must:

* be a United States citizen or an eligible non-resident
* be enrolled in a degree granting program
* be registered for a minimum of 6 credits
* be in good academic standing and be making satisfactory progress toward a degree
* not owe a refund on a Title IV grant or be in default on a Title IV loan received at any institution

All students must complete and sign the Statement of Registration Compliance/ Educational Purpose in order to be eligible for federal funds.

APPLICATION PROCEDURE

The student should **complete** both the MFAF and the STCC Financial Aid Application forms to be considered for aid.

The MFAF is the application used to apply for federal and state aid at STCC. This form is sent to the College Scholarship Service (CSS), Princeton, NJ 08541. The

CSS will analyze this information and forward a Financial Aid Form Need Analysis Report to the Financial Aid Office. Students will receive an acknowledgement form from CSS confirming receipt of the MFAF. This is for the student's records only.

The STCC Financial Aid Form must be completed in full and returned to the Financial Aid Office with the appropriate documentation verifying the parent's and/or student's (and spouse's) income. Documentation may include a signed copy of parent's and/or student's Federal Tax Return and verification of non-taxable income such as AFDC, unemployment, social security benefits, and veterans benefits. A detailed list of non-taxable income is included in the MFAF. All information is considered confidential.

Deadlines: Applications are available year round, however due to limited funding students are urged to apply early. Applications received after April 1 are considered late. Students must submit applications for the Massachusetts State Scholarship before the May deadline.

TYPES OF ASSISTANCE

The following aid programs are available to students at STCC. These programs are for the students who demonstrate a financial need.

A. GRANTS/SCHOLARSHIPS

PELL GRANT: Is an entitlement grant available to eligible students who are currently enrolled in an institution of higher education or vocational school. Students must be enrolled for a minimum of 6 credits to be eligible. The number of credits for which a student is enrolled determines the actual amount of the grant. These grants do not have to be repaid. Students who received a Pell Grant in 1986-87 or earlier may continue to receive a grant until they earn their first B.A. degree. Students who receive their first Pell Grant after 1986-87 may not receive a grant for more than 5 years. Students who have a baccalaureate degree are not eligible.

SUPPLEMENTAL EDUCATIONAL OPPORTUNITY GRANT (SEOG): Is a grant for students who demonstrate an exceptional financial need. Students who have a Baccalaureate Degree are not eligible.

MASSACHUSETTS STATE SCHOLARSHIP: Is an award for full-time (12 or more credits) undergraduate matriculated students. Students must not have received state scholarships for more than seven (7) previous semesters. Awards range from $200 to $900. Eligible students must be legal residents of Massachusetts. Awards for this program are determined by the State Board of Regents of Higher Education. Students who have a baccalaureate degree are not eligible.

ADULT LEARNER PROGRAM: Is a grant awarded to ADFC head of household recipients based on financial need. Students must be enrolled for a minimum of six (6) credits, and be a legal resident of Massachusetts.

REGENTS PART TIME SCHOLARSHIP (RPTS): Is a grant awarded to undergraduate students enrolled for six (6) to eleven (11) credits. Eligible students must be legal residents of Massachusetts.

B. LOANS

PERKINS STUDENT LOAN PROGRAM: Is a low interest (5%) loan for students demonstrating exceptional financial need. Repayment of the principal and interest does not begin until six (6) months after the student ends his/her studies or ceases to be at least a half-time student. A new borrower (one who has no outstanding principal or interest on any Direct loan) has a grace period of nine (9) months. Repayment of the principal may be extended over a ten (10) year period.

GUARANTEED STUDENT LOAN (Stafford Loan) Is a state and federally sponsored loan program. Applications may be obtained at most banks or other lending institutions. Guidelines for borrowers are set by the state agency; however, banks and other lending institutions have the option to impose additional requirements.

All GSL applicants must demonstrate a financial need in order to qualify for federal interest benefits. A Financial Aid Form must be filed. The maximum loan amount in $2625 per academic year. Interest rates vary according to when the student takes out the loan. Repayment commences six (6) months after the student ends his or her studies, or ceases to be at least a half-time student. All loans for the academic year $1,000 or more will be disbursed in 2 or more installments. Any loan for less than $1,000, or for one semester, will be disbursed in one payment.

MHEAC PARENT PLUS LOAN: Is a loan to parents of dependent students who are registered at an eligible institution at least half time. The parents can borrow up to $4,000 per year at a variable rate; however, they are not eligible for federal interest benefits. The aggregate loan amount for each student is $20,000 (not including GSL or SLS programs.)

MHEAC STUDENT SUPPLEMENTAL LOAN: Is a loan available to independent students who are registered at an eligible institution at least half time. Students may borrow up to $4,000 per year at a variable rate. The aggregate loan limit is $20,000. These loans are not eligible for federal interest benefits. Repayment begins within 60 days after disbursement, except in cases of certain disbursements.

C. TUITION WAIVERS

STATE TUITION WAIVER (TW) Is an award to Massachusetts residents. Students must be enrolled in the day division and have a financial need. Priority is given to those students enrolled for at least 12 credits. This is not a cash award, but a credit toward one's tuition.

D. STUDENT EMPLOYMENT

COLLEGE WORK STUDY (CWS) Is a program designed to stimulate and promote the part-time employment of students who demonstrate a financial need. Students may work an average of 10-20 hours per week during the academic year. If funds are available, students may work up to 40 hours per week during summer and vacation periods. The rate of pay varies with the student's experience and skills. Every attempt will be made to place students in job locations that complement or reinforce their educational goals.

MASSACHUSETTS EDUCATIONAL EMPLOYMENT PROGRAM (MEEP) Is a program providing employment opportunities for students related to their field of study. MEEP is awarded based on financial need. Students must be at least half time, and a legal resident of Massachusetts for at least one year.

E. OTHER

There is a limited number of scholarships offered by the college and by private organizations in the greater Springfield area. This information is available in the Financial Aid Office, Garvey Hall South Wing, Student Services Center.

HOW NEED IS DETERMINED

Each student applying for financial aid has a budget. This budget consists of direct educational costs for tuition, fees, books, and supplies, as well as those costs which are incurred by virtue of attendance such as transportation and lunch. In addition, all students have costs related to room and board, recreation, and personal expenses. From these expenses available resources are deducted. These resources may include taxable and non taxable income, and a percentage of the assets of the student, spouse, and/or the parents. The difference between the total expenses and the family contribution is the student's financial need.

OBLIGATIONS AND RESPONSIBILITIES

All students must be enrolled for a **minimum** of six (6) credit hours (half-time status) per semester to be eligible for financial aid. Any student enrolled for less than full time (12 credits) may have their award prorated. **Enrollment status will be determined at the end of the Add/Drop Period for each semester.** Students who drop credits during this time will have their Pell Grant and Tuition Waiver reduced accordingly.

All students must notify the Financial Aid Office when a course(s) is dropped or a withdrawal from school is initiated. In these cases, the award amount which the student has already received will be evaluated to determine if the student must repay any portion of this award. Refund policies affecting tuition payments are listed in the college catalog. These policies, along with those established by the Office of Education, will be used in determining a student's possible repayment of a financial aid award.

All students must notify the Financial Aid Office of any change in his/her and/or his/her parents' income status, as well as name and address changes. All students are required to notify the Financial Aid Office of any additional funds received from outside sources during the academic year (scholarships, student employment [co-op], tuition waivers, etc,). The Financial Aid Office is required to adjust the student's budget and/or revise his/her original aid award.

Loan recipients must have an exit interview prior to completion of their course of study or their departure from the institution. The institution will counsel GSL and Perkins borrowers regarding responsibility of loan indebtedness and repayment obligations.

COLLEGE WORK STUDY recipients must report to the Financial Aid Office for a job assignment. Failure to report for a work study placement within (2) two weeks from the first day of classes may result in termination of this award.

SATISFACTORY PROGRESS

In accordance with federal requirements, the following policy on satisfactory academic progress has been implemented.

1. Students must register for at least six (6) credits each semester to be eligible for financial aid.

2. If students register for only six (6) or seven (7) credits, they must successfully complete at least six (6) credits.

3. Students registered for eight (8) to twelve (12) credits must successfully complete at least 75% [but not less than six (6)] of the credits attempted.

4. Students registered for thirteen (13) or more credits must complete at least nine (9) of the credits attempted.

5. Students registered full-time (12 or more credits) for two consecutive semesters must complete at least twelve (12) credits for one of those semesters.

6. Students registered as three-quarter (9-11 credits) for two consecutive semesters must complete at least nine (9) credits for one of those semesters.

NOTE: Courses for which students receive grades of W, F, or I are not considered courses successfully completed, but are courses attempted.

Students enrolled in the self-paced math module who need one or two credits in order to complete their math requirement must adjust their bill and credits with the Registrar. This will avoid the student's being penalized for credits not completed.

In addition, the institution is required to establish a time schedule delineating the length of time within which a student could reasonably be expected to earn a degree. The schedule STCC has established is as follows:

Candidates for Associate Degree:

Full-time student (12 or more credits)	6 semesters to earn a degree
Three-quarter-time student (9 - 11 credits)	8 semesters to earn a degree
Half-time student (6 - 8 credits)	10 semesters to earn a degree
General Studies students enrolled for 9 credits or more in developmental (remedial) courses in any one semester	8 semesters to earn a degree

Candidates for Certificate:

Full-time student	3 semesters to earn a certificate
Part-time student	4 semesters to earn a certificate

THE STUDENT'S COMPLETE ACADEMIC HISTORY AT STCC WILL BE REVIEWED FOR PURPOSES OF SATISFACTORY ACADEMIC PROGRESS, INCLUDING CREDITS ATTEMPTED WHILE NOT RECEIVING FINANCIAL ASSISTANCE.

A student changing programs must be maintaining satisfactory academic progress in the original program to be eligible for aid in the first semester of the new program; the status of the student in the new program will be determined by the number of earned credits applicable to the new program.

Financial aid students who fail to pass the total credits listed in the following tables may not be eligible for financial aid in the next semester(s) of enrollment. In order to return to satisfactory academic progress, students must pass the appropriate number of credits.

Semester	Minimum Credits Passed	Minimum Cumulative Grade Report Average
Full time students (12 or more)		
1 and 2	21	1.5
3 and 4	42	1.7
5 and 6	64	2.0
3/4 time students (9-11)		
1 and 2	16	1.5
3 and 4	32	1.7
5 and 6	48	1.9
7 and 8	64	2.0
1/2 time students (6-8)		
1 and 2	12	1.5
3 and 4	24	1.5
5 and 6	36	1.7
7 and 8	48	1.9
9 and 10	64	2.0

ACADEMIC STANDING

The Financial Aid Office will abide by the college's policy for academic standing for day students. The same academic criteria will be applied to all students enrolled in the Division of Continuing Education.

Students' grades are received at the end of each semester. Financial aid will be terminated if the student is not making satisfactory progress. Students will be notified by mail and have the right to appeal. Suspended students and those students not making satisfactory progress for two consecutive semesters cannot appeal their loss of aid.

If extenuating circumstances prevented the student from maintaining satisfactory progress, the student must submit a written appeal with appropriate documentation (i.e., **all medical excuses must be accompanied by a doctor's note**) to the Financial Aid Office. The student must file an appeal within one week from the time he/she is notified. LATE APPEALS WILL NOT BE REVIEWED.

The written appeal will be reviewed by a committee made up of members from the college community. The student will receive a written response from the Financial Aid Review Committee indicating whether or not the appeal was approved.

If the appeal is approved, financial aid will be reinstated. To help improve the student's academic standing, the committee has the right to limit the number of credits he/she enrolls for during the semester. However, the Financial Aid Office may not authorize a loan until the student successfully completes the next semester. If the student fails to maintain satisfactory progress for the ensuing semester, the student will be denied further financial aid. The student cannot appeal this decision.

NOTE: If the student's appeal is denied, financial aid will not be awarded; however, the Financial Aid Office encourages the student to continue with his/her educational studies. The student is responsible for his/her own tuition. If the student successfully completes all courses attempted, he/she should re-apply for financial aid for the following semester.

Veterans' Information

DAY STUDENTS

All new students eligible to receive V.A. benefits must contact the Office of Veterans' Affairs (OVA) upon receiving their acceptance letters. All returning students receiving V.A. benefits must contact the Veterans' Office after registration for the upcoming semester. Registering with the School does not certify an eligible student for V.A. benefits for the upcoming semester. All eligible students must contact the Veterans' Office in person to initiate enrollment certification.

EVENING STUDENTS

The following are the procedures to be followed by students eligible to receive V.A. benefits:

1. Academic counseling is required before payment of tuition and fees.
2. Student must matriculate.
3. Paid receipt to confirm enrollment must be brought to the Office of Veterans' Affairs to initiate enrollment certification.

NOTE: All students receiving V.A. benefits must contact the Office of Veterans' Affairs upon withdrawing from a course or terminating enrollment, changing an address, changing dependent status or changing an academic program.

All students should contact the Financial Aid Office to investigate eligibility for Federal and State grants and scholarships.

ACADEMIC STANDING

The quality point index is required to maintain acceptable academic standing in an approved program of study in either the Day School or the Division of Continuing Education.

For complete information on academic standing, refer to page 27.

For Continuing Education purposes, the completion of 12 semester hours will be considered the completion of a semester.

Students receiving benefits from the Veterans Administration are advised that if their quality point average does not permit them to remain in a program, they may continue to attend Evening Division courses at their own expense until their average allows them to re-enter the program.

Students are cautioned that the V.A. will not provide benefits to repeat a course which has been previously passed, nor will they support courses which do not meet the requirements for an approved program of study.

Students receiving benefits from the Veterans Administration are advised that benefits will be extended only for the normal length of time that an approved program is designed to encompass. Full-time students must complete Associate Degree Programs in five semesters. Part-time students will receive reduced benefits for the extended period of time necessary to complete their program of study. Specific questions about benefits, program approval and eligibility will be answered by the Veterans' Office on campus.

GRADING PROCEDURE AND UNSATISFACTORY GRADES

STCC makes use of a scale from "A" to "F" converted into quality points which are utilized information of a cumulative average. A grade of "F" equals 0 quality points and is unsatisfactory. A "D" equals .07 and may count toward a degree if the quality point cumulative average is maintained with respect to degree specifications. (Refer to page on Minimum Prerequisites for Admission.) The Veterans Administration does not authorize benefits for courses which are audited or challenged. **A withdrawal or termination from a course could constitute an overpayment for the veteran.**

WITHDRAWAL AND ABSENCES

All students are required to notify the Registrar of withdrawals or terminations. Students receiving benefits must also contact the Office of Veterans' Affairs. Attendance procedures are at the discretion of the faculty.

Students receiving Veterans Administration benefits will be considered to be making satisfactory progress in each course each semester at the following intervals:

1. If their names appear on the official class list certified by the instructor at the end of the official add/drop period.
2. If they receive a mid-semester grade.
3. If they receive a final grade.

In the event any of 1. through 3. does not occur, the V.A. will be notified within 30 days after the enrollment report or grade report has been issued that said student is not enrolled in the course.

Faculty members may request the Dean of Student Services to withdraw a student for excessive absences.

TUITION WAIVERS AND/OR EXEMPTIONS

For information regarding (1) Massachusetts Vietnam Era Veterans Tuition Waiver, (2) Division of Continuing Education Tuition Exemption Program, or (3) Massachusetts National Guard Tuition Exemption Program, contact the Office of Veterans Affairs.

Individuals expecting to receive one of the above-mentioned waivers/exemptions, must come to the OVA prior to the start of each academic semester.

Academic Information

ACADEMIC YEAR

The academic year at Springfield Technical Community College is divided into two semesters with the first semester ending prior to Christmas vacation and the second semester resuming in the latter part of January. The final week of each semester is devoted to final exams. Unless a formal change is published, the calendar in the STCC College Catalog is official.

ACADEMIC STANDING

A. *Required Quality Point Average*

The quality point average required to maintain good academic standing is:

1. A minimum of 1.5 cumulative average for students who have attempted 12 or more credits at Springfield Technical Community College, including accepted transfer credits.
2. A minimum of 1.7 cumulative average for students who have attempted 27 or more credits at Springfield Technical Community College, including accepted transfer credits.
3. A minimum of 1.9 cumulative average for students who have attempted 42 or more credits at Springfield Technical Community College, including accepted transfer credits.
4. A minimum of 2.0 cumulative average for students who have attempted 60 or more credits at Springfield Technical Community College, including accepted transfer credits.

NOTE: Incomplete, Withdrawal, and Failure grades are counted as courses attempted, but Incompletes and Withdrawals are not factored into the quality point average.

B. *Probation and Suspension*

Students who do not meet the above requirements will be placed on academic probation. After one semester of probation, a student will be:

1. Suspended unless the cumulative quality point average is raised to that required for good standing (i.e. 1.7 for 27 hours, 1.9 for 42 hours, 2.0 for 60 hours or more hours), or
2. Continued on probation if the semester quality point average is 2.25 or above but the cumulative point average stays below that required to remain in good standing, or
3. Continued on probation if not in attendance, or
4. Removed from probation if the cumulative point average is raised to or above that required to maintain good academic standing.

NOTE: A student may be suspended without having previously been placed on probation if the cumulative average falls below 1.0.

C. *Satisfactory Progress*

Unless there are special circumstances, students must complete 75% of courses attempted to be considered to be making satisfactory progress toward a degree.

The College also expects students to take a majority of courses in each semester which lead toward a degree in the major in which the student is enrolled. Students receiving financial aid are also subject to specific provisions on satisfactory progress found in the section on Financial Aid.

D. *Waiver of Provisions of the Academic Standing Policy*

The Dean of Student Services Office administers the Academic Standing policy and questions may be addressed to that office.

An Academic Review Committee is named by the President of the College. The Committee has the authority to:

1. Re-admit students.
2. Waive provisions of the policy on academic standing.
3. Hear student petitions or grievances pertaining to the policy.
4. Give counsel and advice to those who administer the policy and give interpretation and intent clarifications.

Students in the health science programs must maintain a minimum quality point average of 2.0 in their major area of concentration and be accepted by a clinical facility for affiliation. Nursing students must maintain a 2.15 in their major area of concentration. All students in health sciences and nursing must maintain a quality point average of 2.0 in the biological and physical sciences.

The accumulation of credits alone does not necessarily mean that a student is entitled to a degree. A student should refer to his/her specific program curriculum for graduation requirements.

GRADUATION REQUIREMENTS

The Springfield Technical Community College Board of Trustees has statutory authority under the Commonwealth's Board of Regents of Higher Education to confer academic degrees. Candidates for degrees shall have fulfilled the following requirements:

1. Candidates for degrees must meet all departmental graduation requirements. A minimum of 15 credit hours must be earned in residence at the College. Also, the student must have completed at least 20 credits in general education.
2. The student must have earned a minimum cumulative quality point average of 2.0 for all college level courses. Developmental courses are not credited toward graduation requirements.
3. The student must have satisfied all financial obligations to the College, including the payment of the graduation fee, at the beginning of the semester preceding graduation or when 45 credits have been approved for graduation.
4. A Perkins Student Loan recipient must have completed the exit interview with the Financial Aid Officer or his representative.

EXAMINATIONS AND GRADES

Final examinations are scheduled for each course. At the end of each semester, all students receive written letter grades according to the following standards:

Letter Grade	Qualitative Equivalent	Quality Points Earned Per Credit Hour
A	93 - 100	4.0
A-	90 - 92	3.7
B+	87 - 89	3.3
B	83 - 86	3.0
B-	80 - 82	2.7
C+	77 - 79	2.3
C	73 - 76	2.0
C-	70 - 72	1.7
D+	67 - 69	1.3
D	63 - 66	1.0
D-	60 - 62	0.7
F	Below 60	0.0
I	Incomplete	no grade
W	Withdrawn	no grade
Au	Audit	non-credit*

*Non-graduation-credit courses are not factored into the Quality Point Average.

The grade of Incomplete (I) indicates that a major requirement of the course has not been completed. The following policy shall apply to incompletes:

1. An "I" (Incomplete) is a temporary grade assigned to students who fail to complete the requirements of a course. The grade of "I" is to be assigned only to the few students who have valid, approved reasons for their inability to complete the course work on time. An "I" is not to be assigned to a potential failure.
2. An "I" (Incomplete) will change to "F" four weeks after the beginning of the next regular academic semester.
3. This policy shall apply uniformly to the Day Division and the Division of Continuing Education.

DEVELOPMENTAL COURSES (NON-COLLEGE LEVEL)

Springfield Technical Community College has a number of courses that aid students with deficiencies in specific subject areas. These courses, all with course numbers below 100, are intended to bring the student's skill to a level where the student will be able to accomplish the college-level work. It is the policy of the College that, relative to developmental courses (non-college level), the following shall apply:

1. Academic credit will be awarded for developmental courses but will not count for graduation credit.
2. Developmental courses shall not be calculated into a student's quality point average on a semester basis nor shall such grades be calculated into a student's cumulative quality point average.
3. All registrations for developmental courses shall appear on student transcripts.

MAKE-UP EXAMINATIONS

A student failing to take a semester examination may apply in writing to the appropriate academic division chairperson and the instructor concerned, and, subsequently, the Dean of Academic Affairs, who may give permission to take a make-up examination. If, in their opinion, absence from the regularly scheduled examination was unavoidable, the student may take a make-up examination upon payment of a $5 fee.

If the student's absence is due to his/her religious beliefs, then the following legislation will apply.

Any student in an educational or vocational training institution, who is unable, because of his religious beliefs, to attend classes or to participate in any examination, study, or work requirement on a particular day shall be excused from any such examination or study or work requirement, and shall be provided with an opportunity to make up such examination, study, or work requirement that he may have missed because of such absence on any particular day; provided, however, that such makeup examination or work shall not create an unreasonable burden upon such school. No fees of any kind shall be charged by the institution for making available to the said student such opportunity. No adverse or prejudicial effects shall result to any student because of his availing himself of the provisions of this section.

CLASS SCHEDULE

A class schedule is published each year along with the academic calendar.

In the majority of cases, with the exception of Directed Study courses, three-credit courses meet three times a week and are of 50 minutes duration, or are 75 minutes long and meet twice a week. Exceptions may be found in career curricula and other special programs. Most class hours begin at 8:00 a.m. for classes that meet twice a week, on Tuesday and Thursday, and at 8:30 a.m. for those meeting three times per week, on Monday, Wednesday, and Friday.

CLASS ATTENDANCE/GRADING POLICY

The faculty of the College has voted to allow each instructor to set his/her own classroom attendance policy. Each faculty member will notify his students in writing at the start of each semester of his/her attendance policy, grading policy and course requirements. The Dean of Student Services will, upon request from an instructor, warn students when they are in violation of an instructor's published attendance policy. The Dean of Student Services may, at the recommendation of the instructor, withdraw such a student from that class.

Off-campus activities, appropriately supervised and sponsored by faculty members, which justify a student's absence from scheduled classes, must be approved in advance by the Dean of Student Services. Such activities must be justifiable on grounds consistent with the educational program of the College. Whether a student is excused from class or examination to participate in such activities is determined by the instructor concerned.

MID-SEMESTER GRADES

At mid-semester, students will be graded by each of their professors. These grades will be recorded by the Registrar and forwarded to each student's advisor for dissemination and discussion. These grades will not become part of a student's permanent record but are used to indicate his/her performance through the first half of the semester.

REGISTRATION PROCESS

Returning students must pre-register for the Spring Semester in October, and for the Fall Semester in March of each year, with their faculty advisors. It is the student's responsibility to seek out information concerning departmental course requirements prior to pre-registration. This may be done with the assistance of the faculty advisor, department chairperson, or the Counseling Center. Returning students are expected to pay their bills and complete the registration process prior to the start of classes.

New students are encouraged to attend an Orientation session held in both August and January prior to the beginning of classes, at which time they are expected to pay their bills and complete registration. A final day of registration is scheduled immediately before classes begin, after which a late registration fee of $5 will be charged.

Students wishing to change their schedules may do so during the first week of classes. Admittance to a course at this time is, however, dependent upon the seats available.

COURSE CHANGES (DROP/ADD)

Students are permitted to add and drop courses (subject to the approval of faculty advisors) during the first week of classes without penalty. Any changes made thereafter will require the payment of a $3 fee by the student to the Cashier's Office. *No change will be permitted beyond the second week of classes.*

DEPARTMENT/PROGRAM CHANGES

Students wishing to change their program or department should do so only after considerable thought and counsel. To initiate a program change, students must obtain an Intra-College Transfer application from the Admissions Office.

Consultation with the faculty advisor, an admissions counselor, or the career counselor is recommended to ensure that prerequisites for admission to the new program have been satisfied, before submitting the application to the Admissions Office. The application should be submitted to Admissions no later than December 31 for the following fall term. Applications are reviewed by Admissions, and notifications of decisions mailed to students.

COURSE WITHDRAWAL

A student may withdraw from a course after the Add/Drop period through the twelfth (12th) week of class with the grade of "W" (withdrawal) recorded on his/her official transcript. After the twelfth (12th) week, an earned grade will be recorded on the official transcript. Withdrawal forms require the signature of the course instructor, the faculty advisor, and the Registrar.

COLLEGE WITHDRAWAL

Students wishing to withdraw from the College during a semester need to complete a "Withdrawal from College" form which must be returned to the Registrar's Office in order for students to be officially withdrawn. At this time an exit interview will be conducted and a check will be made to ensure that all financial obligations to the College have been met.

A student who does not complete a semester and has not officially withdrawn from a course or courses will receive a letter grade of "F." To remove this letter grade, the student must petition the Registrar to initiate a request for a grade change to Withdrawal. The Registrar will then forward the request to the course instructor for evaluation and decision. The decision of the instructor will be final. If the instructor cannot reasonably be reached, the request shall be submitted to the faculty of the appropriate academic department for a decision.

The decision will be based on documented evidence of extenuating circumstances provided by the student seeking the grade change. If the instructor or the appropriate department members deem a change to "W" is appropriate, the normal grade change procedure will be followed. Forms may be obtained from the Registrar's Office.

REPETITION OF COURSES

Any student who receives an unsatisfactory grade in a course may repeat that course and both grades will appear on his permanent record. However, only the second grade will be calculated into his/her quality point average.

AUDITING OF CLASSES

Students may attend certain classes as auditors (i.e., without receiving credit) under the following conditions:

1. Permission must be obtained from the Instructor and submitted to the Registrar during registration period.
2. All established charges for the course must be paid.
3. Priority in registration will be given to students who are registering in the course for credit.
4. Audit courses will be reflected on student's permanent record as Audit.

DEAN'S LIST

In order to recognize above-average academic performance, a Dean's List is published each semester. Any student carrying 12 or more semester hours who earns a 3.3 quality point average is placed on the Dean's List, providing that student has no grade less than a "C" in that semester.

COMMENCEMENT HONORS

Academic honors are bestowed on those students at Commencement who have distinguished themselves academically at the College. In order to receive honors, a student must have a minimum of 30 semester hours in residency prior to Commencement and have achieved the following cumulative quality point average: *Honors* - 3.3 to 3.69; *High Honors* - 3.7 to 3.89; and *Highest Honors* - 3.9 to 4.0.

ALPHA NU OMEGA HONOR SOCIETY

Springfield Technical Community College is a charter member of the Alpha Nu Omega Society. The purpose of Alpha Nu Omega is to foster academic excellence at the College. Membership is open to any student with a quality point average of 3.5 and who has completed 24 semester hours.

Student Information

STUDENTS' RIGHTS AND RESPONSIBILITIES

This statement of rights and responsibilities is designed to clarify those rights which the student may expect to enjoy as a member of the student body of the College, and the obligations which admission to the College places upon the student.

GOAL

To provide an atmosphere where sound intellectual and academic development is provided.

OBJECTIVES

A. Student Responsibilities

1. To be knowledgeable of and comply with the directives, regulations, and laws as established by the Massachusetts Board of Regents of Higher Education, Springfield Technical Community College Board of Trustees, the College administration and the Student Government Association.

2. To respect the rights of individuals and groups to independent action as long as those rights do not interfere with the parallel rights of others—minorities and majorities alike—including the avoidance of action interfering with those educational processes under the auspices of the College.

3. To be knowledgeable of and comply with the directives, regulations, and laws of duly constituted civil authorities.

B. Student Rights

1. To have the opportunity to pursue higher education.

2. To have the freedom to exercise the rights of citizenship, association, inquiry, and expression.

3. To have the right of privacy and confidentiality.

4. To have the right of voting representation on all recommendations to the President of the College on matters of concern, including but not limited to, academic standards, student services, and curriculum changes.

5. To have the right of quality education, including but not limited to:
   a. The right to competent instruction in courses and programs offered by the College.
   b. The right to assistance in overcoming educational, cultural, emotional and economic disadvantages which hinder the educational process.
   c. The right to receive in writing from each faculty member during the first week of classes, of every semester, a brief, written course description and outline of the material to be covered, course requirements including a specific list of information and techniques which the student is expected to acquire, attendance policy, and the grading system to be utilized.

6. To have the right to fair and equal treatment, including but not limited to instruction, evaluation, and services by faculty, staff, students, and administrators.

7. To have the right to procedural due process in grievance and disciplinary hearings.

Approved by the Springfield Technical Community College Board of Trustees, May 29, 1984.

SPRINGFIELD TECHNICAL COMMUNITY COLLEGE
STUDENT GRIEVANCE PROCEDURE

If a student has a grievance relating to college policy, procedure, personnel, or student rights, the student may follow this grievance procedure. If assistance is needed with the process, the student may contact the Dean of Student Services' Office, and help will be provided.

1. *Definitions*

"Complaint:" The informal, often unwritten stage of an allegation of mistreatment.

A "grievance:" A written complaint filed by a student with the person designated by the President as Student Grievance Officer specifically alleging discrimination or an abridgement of his/her rights as a student.

"Student Grievance Officer:" A College employee assigned responsibility for administering the student grievance procedure, including the maintenance of specified records. At STCC, the Dean of Student Services has been assigned this responsibility. In case of grievance against the Dean, the President shall designate another College official to act as the Student Grievance Officer.

"Grievant:" The student or students filing the grievance. The grievant must have been a registered student of the College at the time of the alleged mistreatment.

2. *Purpose*

The primary purpose of this procedure is to secure prompt and equitable resolution of student complaints and grievances. Grievances properly filed in this forum include, but are not limited to, matters arising under federal and state laws prohibiting discriminatory educational practices. Customary channels of communication shall be used wherever feasible, in seeking clarification of questions of concern before the grievance procedure is utilized. Every effort shall be made to maintain confidentiality at each level of this procedure.

3. *Time*

The number of days indicated at each level shall be considered as a maximum. Every effort shall be made to expedite the process. Nevertheless, the specified time limits may be extended in extenuating circumstances by the immediate supervisor of the person against whom the grievance is directed, the President or his/her designee, or by mutual consent of the grievant and the person against whom the grievance is directed, provided that such extensions shall be confirmed in writing.

4. *Procedure*

Level One - Informal Procedures

Customary channels of communications shall be used in seeking clarification of questions of concern and in resolving complaints before the formal procedure is used. This is the informal stage where most complaints are resolved. For example, a student who has a complaint regarding a classroom incident customarily notifies the faculty member, and then the Division Chairperson. The student may consult with the Student Grievance Officer, William Manzi, Dean of Student Services, at any time prior to or during the grievance procedure, and must consult with him prior to filing any written complaint.

Step One - Except in cases of alleged physical assault or sexual harassment, the grievant shall first present the grievance orally and informally to the person against whom a grievance exists. This should be done in a reasonable period of time, within thirty (30) calendar days from the date that the Grievant knew or should have known of the grievable act or inaction. An individual who believes that he/she is the victim of sexual harassment or physical assault may initiate his/her complaint at Level One, Step Three, i.e., with the immediate supervisor of the person against whom the complaint exists, not later than thirty (30) calendar days following the instructional period when the alleged incident occurred.

Step Two - If the complaint is not resolved within ten (10) calendar days after the notice of the Step One complaint, the grievant may within ten (10) calendar days present in writing the allegations and known facts to the person being grieved. A complaint filed at this level should specifically state that it is filed at Level One,

Step Two. The grievant shall also date the document, retain a copy, and hand deliver or send it by certified mail. The person against whom the complaint is directed shall forward a written Step Two response, if any, to the student within seven (7) calendar days from receipt.

Step Three - If the complaint is not resolved within seven (7) calendar days after receipt of the Step Two response or if no written response is issued, the grievant may present it in writing to the supervisor of the person against whom the grievance is directed, with a copy to the Dean of the area of the person(s) against whom the grievance is directed. The supervisor shall investigate the complaint, and after conferring with the appropriate Dean, shall forward his/her written decision to the grievant and to the person being grieved within seven (7) calendar days.

Level Two: Formal Procedures

Step One - Student Grievance Committee - If the complaint is not resolved within the period allowed at Level One, Step Three, the grievant may present a formal grievance, in writing, including a statement of the charges, and all supporting statements and evidence, to the Student Grievance Officer within ten (10) calendar days after receipt of the supervisor's decision. The Student Grievance Officer shall arrange a meeting of the Student Grievance Committee within fourteen (14) calendar days following receipt of the grievance, and shall provide a copy of all written supporting statements and evidence presented at the lower steps to each member of the committee at least twenty- four (24) hours prior to the hearing. The committee shall render its findings and any recommendations within seven (7) calendar days.

Membership of the College Student Grievance Committee

The committee shall consist of five members:
1 - classified employee
1 - administrator
1 - faculty/staff unit
1 - student

The fifth member shall be from the same identifiable group as the person being grieved. Members shall be appointed by the President. In cases of discrimination as they apply to applicable federal or state anti-discrimination laws, the Affirmative Action Officer shall be a non-voting committee member. The Student Grievance Officer shall be a non-voting committee member, attend all meetings, and maintain confidentiality of meetings.

Rules for Committee Hearings

The rules governing hearings before the College Student Grievance Committee are available in Dean Manzi's office.

Step Two- Within thirty (30) calendar days after the grievance committee issues its findings and recommendations, the President or designee shall evaluate all the evidence and make a decision, in writing, to all concerned parties. At the President's or designee's discretion, a hearing may be conducted prior to rendering a decision. This hearing shall be closed, with the grievant and person(s) grieved invited, and each may bring a representative. The decision of the President or designee shall be final and binding on all parties.

5. *Grade Appeals*

Complaints or grievances filed in connection with assigned grades represent a special case within the grievance procedure. Grading reflects careful and deliberate assessment of a student's performance by the instructing professional. As such decisions are necessarily judgmental, the substance of these decisions may not be delegated to the grievance process. Nevertheless, the College recognizes that in rare cases the process of grading may be subject to error or injustice.

Except as otherwise provided by a separate grade appeals procedure for clinical programs as approved by the President of the College, a student who alleges an error or injustice in the grading process may employ the grievance procedures described in Level One, Steps One through Three, above; provided that the appropriate Dean for these purposes shall be the Academic Dean. No complaint challenging a grade may be initiated later than thirty (30) calendar days following the last day of the instructional period for which the grade was granted. If the faculty member who assigned the grade is no longer employed by the College or not available, the complaint may be initiated with the appropriate Division Chairperson. If substantial evidence of error exists, the grade may be remanded to the instructor for reassessment. If the instructor is unavailable, the grade shall be reassessed by the appropriate Division Chair or designee.

6. *Hearings and Decisions*

At each of the above levels, the grievant and the person being grieved shall be afforded the opportunity to be present and be heard. In addition, each party may present, examine, and cross examine witnesses. All decisions and/or recommendations at each level must be in writing, with the exception of Level One - Steps One and Two, and shall include supporting reasons with copies to both parties.

7. *Rights of Persons Being Grieved*

If recommendations result in sanctions against College employees, these measures shall be regarded as administrative actions subject to all conditions of applicable collective bargaining agreements and College and/or Board of Regents personnel policies.

8. *Alternative Forums*

Filing a grievance in accordance with the procedures herein detailed in no way abrogates the student's right to file complaints with the appropriate state and federal agencies or with the court. However, once the grievant initiates proceedings in any other forum, his/her rights to proceed under the student grievance procedures are waived.

For purposes of filing federal level charges of discrimination, the student may contact the College Director of Affirmative Action, Myra Smith, in Garvey Hall, Room 245, extension 3833.

9. *Withdrawal*

Students may withdraw their informal or formal complaints at any time. Withdrawal may be accomplished in writing or by oral agreement confirmed in writing.

10. *Reprisals*

The College shall not interfere, restrain, or coerce any student in the exercise of his/her rights under this grievance procedure and/or his/her participation in any grievance proceedings.

STUDENT CODE OF CONDUCT

The College assumes that its students will behave in such a way that will reflect creditably upon their homes, family, College and community. To help provide an orderly atmosphere to nurture student development, certain regulations and policies have been developed over the years. The College further assumes that all students will abide by these regulations and policies. Violations of established College policy may result in disciplinary action up to and including suspension from the College.

The following is not an all-inclusive list of prohibited actions, but will serve as a guideline.

1. Academic dishonesty - such as plagiarism, cheating, use of unauthorized books or notes, knowingly furnishing false information, unauthorized reading, removing, duplicating, photographing, misuse of any college file, document, or record of any faculty, administrator, staff or student.

2. Alteration of college records, documents, or identification instruments or the use of the same with the intent to defraud.

3. The possession or use of narcotics and dangerous drugs as defined by the laws of the Commonwealth of Massachusetts is prohibited on campus and at all college-sponsored off-campus activities. The use or possession of alcoholic beverages is restricted by the Massachusetts Board of Regional Community Colleges to special social events.

4. Intentional obstruction or disruption of normal college conduct, functions, processes, routines, college activities on or off campus, or activities of those invited to the campus for any purpose.

5. Physical abuse or misuse of persons or property on campus or at college-approved off-campus activities.

6. Theft, or unauthorized use or possession of any property (including keys, files, documents, library materials, etc.) owned, leased, or maintained by the College or by persons on the campus.

7. Weapons, firearms, explosives - possession, sale, or use of any weapon, firearm, explosive, or explosive device including fireworks.

8. Failure to comply with directions of college faculty, staff and administration acting in the performance of their duties.

9. Violations of published college regulations including parking, motor vehicle movement, use of college buildings or equipment and any other regulations which may from time to time be enacted.

ACADEMIC HONESTY POLICY

Communication of knowledge and a free exchange of ideas, two essential aspects of a college community, require a fundamental standard of honesty. Students and faculty must be able to expect that thought and work presented for the class are the property of the person claiming credit for them. To safeguard these principles, it is important to clarify the rules and procedures regarding academic honesty.

1. Students must refrain from all forms of academic dishonesty including cheating on quizzes and examinations, abetting others in cheating, appropriating other students' work, and plagiarizing written assignments.

2. Faculty who find students in violation of honesty standards shall determine the appropriate response. Punishment may include dismissal and/or a failing grade in the course.

3. Faculty will report incidents of academic dishonesty and the action taken in response to them **in writing** to the Dean of Student Services.

4. The Dean of Student Services may elect to pursue further action up to and including dismissal from the College.

5. Students who believe themselves to be unjustly accused or punished for academic honesty violations may pursue the matter through the grievance procedure outlined on the preceding pages.

POLICY OF CONFIDENTIALITY OF STUDENT RECORDS

The Family Educational Rights and Privacy Acts 1974, as amended, provides for students to have access to their educational records, to challenge anything in the records which they consider inaccurate or misleading, and to limit the release of such information.

In compliance with the law, the College has established a policy to protect students from misuse of information. The policy is summarized as follows:

1. Directory Information will include (1) name, (2) address, (3) confirmation of date of graduation and certificate/degree received. Students may withhold their Directory Information by notifying the Dean of Student Services in writing.
2. Authorized personnel may have limited access to student records for (1) internal educational purposes, (2) routine administrative and statistical purposes, or (3) legitimate inquiries made to review a student's background information in order to adequately instruct and advise the student in a specific academic area.
3. A record log or audit trail will be kept for all students showing the student's records. No record of access need be kept if the obtained information is considered directory information, is required for normal clerical maintenance of a file, or is seen by authorized personnel in the normal performance of their responsibilities.
4. No records will be released to anyone without the formal written consent of the student concerned. A student will be notified whenever a court subpoenas the records.
5. Students may have general access to their records and the right to challenge records they believe to be inaccurate, incomplete, or misleading, or otherwise in violation of their privacy.

HOUSING

Since the overwhelming majority of our students commute, the College does not operate dormitories. However, a current list of apartments and rooms available in private homes is maintained for students whose permanent residence is at a distance. The College does not inspect, supervise, or recommend student housing facilities. Housing arrangements are the sole responsibility of the student. The Dean of Students' Office will assist students who have not been able to make suitable arrangements from the current housing list, which is available on request.

STUDENT SUPPORT SERVICES PROGRAM

The Student Support Services program provides college students with assistance in meeting their academic goals. Project services are designed to facilitate a student's adjustment to the college milieu and to maximize his or her potential for success. Specific services include: academic and career advising, specially-designed orientation and workshops, personal counseling, and a one-semester course. The program emphasizes individual contact with each project participant. Student Support Services is located in Garvey Hall South (Building 15), Room 200, and is a part of the General Studies Division.

English As a Second Language Program

The English As a Second Language Program has been designed to help students develop language skills for successful performance in a regular program at STCC.

Students are given the University of Michigan placement test and placed in the appropriate level according to the test score.

The program offers three different levels of English As a Second Language courses. Each level has three courses, for a total of thirteen hours of direct instruction per week.

The program also provides tutors for students who need additional support to enhance their understanding of English grammar concepts and to help them improve their language skills.

The English As a Second Language Program is offered through Core 6 of the General Studies Program. Please see page 106 for further information.

Tutorial Assistance Program

The Tutorial Assistance Program is an important component of Springfield Technical Community College. Through the services of this program, students in need of tutorial assistance receive tutoring in any academic field. The Tutorial Assistance Program Coordinator is located on the first floor of Building 15, in the Student Services Center.

HEALTH CAREERS OPPORTUNITY PROGRAM

The Health Careers Opportunity Program, located on the first floor of Building 20, assists students who are planning to apply for admission to nursing or one of the allied health programs at STCC. Students are provided with career guidance; academic support in math, science, and English; computer-assisted instruction to improve basic skills; and intensive, individual attention. HCOP staff help to prepare students to gain entry to the health/human services programs at STCC, and also to acquire the skills necessary to successfully complete the programs and enter a rewarding career.

PIONEER VALLEY A.H.E.C.

The Area Health Education Center (AHEC) of the Pioneer Valley, an affiliate of STCC, is located in Garvey Hall South, Room 204. Developed at the federal level, the Pioneer Valley AHEC is now primarily funded by the Massachusetts Board of Regents of Higher Education. The organization is one of six AHEC's in the commonwealth of Massachusetts, and serves Hampden, Hampshire, and Franklin counties.

The Pioneer Valley AHEC serves two major functions: developing and implementing health promotion training/service programs, and recruiting minorities into health professions. Health promotion training/service programs are established through a network of area colleges and universities, as well as community agencies. The programs, which are funded by the Pioneer Valley AHEC, generally involve the placement of health professions students in community-based agencies for part of their training. The students provide various health services, so that health training and service needs are matched.

The minority recruitment objective is achieved through two REACH (Recruitment Education and Assistance for Careers in Health) programs located in Holyoke and in Springfield. The Springfield program is located at STCC, in Room 379 of Garvey Hall. Both AHEC/REACH programs expose minority junior and senior high school students to information about and assistance toward careers in health.

COUNSELING SERVICES

The Counseling Center assists students regarding educational, career, or personal concerns. The Center is staffed by professional counselors whose primary function is to help students make good decisions when they are experiencing uncertainties or difficulties, or are planning their future. The areas of counseling available are listed below:

Career Counseling

Career Counseling helps students make sensible career choices. Individual appointments are available to help students through the decision-making process in which they set priorities and plan and implement both short and long-range career goals.

Career Testing is available to help students match values, skills, interests and needs with possible career choices.

Career Resources - The Center maintains an excellent collection of catalogs, directories, pamphlets and other career resources which students are welcome to use. The STCC Library also has an extensive career collection, including microfiche copies of recent college catalogs from across the country.

Career Planning Modules - (ND 122, 123, 124) are designed to assist students in career and life planning. Interest and personality assessment, skills identification, values clarification, career exploration, and career decision-making are major topics.

Transfer Counseling: *Please see page 45.*

Academic Advisement

Academic Advisement is offered to students or prospective students to assist them in making appropriate program and course choices. Program sheets outlining STCC degree requirements are available in the Counseling Center.

Personal Counseling:

Personal Counseling: Counselors are available to assist students in resolving personal concerns. Supportive, behavioral, and other types of counseling are provided on a strictly confidential basis. Major emphasis is on helping essentially normal people resolve personal and interpersonal problems. Should a student require services not offered by the Counseling Center, referral to the appropriate community resource is made.

Special Interest Groups

Support Services - A Rehabilitation Counselor is available to work with students who have a physical and/or emotional disability. This counselor will assist the student in clarifying his/her academic and personal needs. Coordination of services within the College and within the community will provide the student with counseling, tutoring, financial aid, appropriate equipment, etc.

The counselor will act as a resource person concerning specific or general issues related to disabilities and modifications in teaching and learning methods. Faculty are encouraged to contact the Counseling Center whenever supportive services are indicated.

Learning Disabilities - If a student is experiencing extreme difficulty reading, comprehending, or processing information, a learning disability may exist. An informal assessment by the Counseling Center can be arranged. Referral for further evaluation will be provided, whenever it is indicated. Ideas for modifying teaching and learning methods are also available.

RETURNING ADULT WOMEN'S CENTER

The Returning Adult Women's Center at STCC is designed to serve the increasing number of women returning to college after several years as a homemaker or in the workforce. The Center provides academic and personal support, and a community and campus referral network as well as a gathering place for women students to share experience, concerns, and information. The Center is located in Building 20, Room 100, adjacent to the student lounge, and is administered by the Office of Student Services. The telephone number is 781-7822, extension 3723.

ARMORY SQUARE DAY CARE

Armory Square Day Care, Inc. is a private, non-profit day care center operating on the campus of STCC. The center opened in the fall of 1984, to serve the children of students, faculty, and staff at STCC. Located in Building 20, the center can accomodate up to 27 children, from ages 2 years 9 months to 5 years, during the academic year. Children must be toilet-trained. The center also runs a full-day kindergarten program for up to 13 children ranging in age from 4 years 7 months to 7 years. The center plans to move to Building 11 with an expanded program to include infants and toddlers.

The Armory Square Day Care program is based on the belief that young children learn through play. The center provides a variety of experiences designed to build the child's self-esteem and develop social skills. The telephone number is 737-3455, or 781-7822 extension 3726.

THE LIBRARY

STCC's library is located in Building 27 (along Federal St.), directly across the lobby from the college bookstore. During the regular fall and spring semesters, it is open from 7:30 a.m. to 9 p.m. Monday through Thursday, and 7:30 a.m. to 5 p.m. on Friday; as well as 9:00 a.m. to 1:00 p.m. on Saturday. The library is closed on legal holidays; summer and vacation hours may vary. All students enrolled part or full time in both day and evening divisions are entitled to use the library's resources and services.

Print Materials:

The library's print collection contains over 51,000 books, 390 journals, 12,000 pamphlets and documents, newspapers from surrounding major metropolitan areas, catalogs of colleges throughout the U.S., current fiction and non-fiction paperbacks, and children/young adult books. The selection of journals includes a number of popular magazines in addition to a wide variety of specialized publications covering all fields in the STCC curricula. Magazines and reference books - including encyclopedias, atlases, almanacs, catalogs, indexes, and directories — must be used in the library. All other books and pamphlets may be charged out.

Career Center:

Situated across from the reference desk, the library's Career Center offers materials on a wide variety of occupations. Brochures, industry profiles, career handbooks, resume/cover letter guides, and job hunting manuals comprise the bulk of this collection — much of which is available for loan.

Non-Print Materials:

The library maintains a large collection of non-print materials, including 16mm films, videocassettes, audiocassettes, filmstrips, slides, records, transparencies and film loops. Fully-equipped rooms for individual and group viewing of programs are located to the right of the circulation area. Staff from the AV Department are available to assist students with the projectors/viewers. Audiocassettes and records may be charged out just like books.

Circulation:

All library materials are charged out and returned at the circulation desk. Items placed on "Room Reserve" by faculty are located here as well. A valid student ID card is necessary in order to sign out materials.

For convenience, there is a book drop outside Garvey Hall where materials may be returned when the library is closed.

Reference:

For anyone having difficulty locating books or information for class-related or personal use, a reference librarian is always on duty. He/she will assist students in finding information and show them how to use the wealth of resources available in the library.

Cooperative Borrowing:

CLGS (Cooperating Libraries of Greater Springfield) — Through an agreement among the colleges in the Greater Springfield area, any STCC student may use the other college libraries by presenting a valid STCC ID. The participating institutions are: American International College, Bay Path Junior College, Elms College, Holyoke Community College, Springfield College, Western New England College and Law School, and Westfield State College. Springfield City Library and Baystate Medical Center Library are also included in the group. As a result of CLGS, many additional resources are available. When using other area libraries, students are subject to their policies and regulations concerning loan periods and possible penalties for overdue materials.

C/W MARS (Central/Western Massachusetts Automated Resource Sharing) — STCC participates in C/W MARS, a computer network of 41 academic, public and special libraries, which brings its members automated circulation and interlibrary loan systems. As a result of the library's participation in this network, the STCC community has access to over 4 million books and other library materials previously unavailable to the college community.

Other — Students may use the resources of all Massachusetts public college and university libraries by presenting a valid STCC ID. If a student needs a book which is unavailable in the Greater Springfield area or at the University of Massachusetts, the book can be borrowed by mail through interlibrary loan. All requests for ILL are handled at the reference desk.

Miscellaneous:

Within the library are other facilities which students may wish to use. These include a copy machine which costs $.05 per page, and a microfiche copier which costs $.10 per page.

A student library guide with complete details on materials and services is available to all students at the circulation and reference desk.

ACADEMIC COMPUTING SERVICES

STCC is pleased to provide its students with exceptional and modern academic computing services. This provision is in recognition of the varied uses for which computers are used today. Our resources consist of Digital and Wang minicomputers as well as IBM and Apple microcomputers, making up a total of approximately 160 work stations. Staff is available in the computer labs to support students in their use of the College's computers for programming assignments, electronic spreadsheets, word processing, data bases, Computer Assisted Instruction, and Computer Assisted Drafting (CAD). As the use of computers grows, we are making every effort to meet the needs of our student body.

ART GALLERY

The STCC Art Gallery, located on the first floor of Building 27, is open Monday through Friday, 11:00 a.m. to 4:00 p.m. throughout the academic year. Directed by Art Department faculty member Larry Slezak, the Gallery presents approximately seven exhibits each year, featuring works by artists of local and national repute, as well as STCC student work.

ATHLETICS

Inter-Collegiate Athletics are an integral and prominent part of STCC's educational objectives. Sports are seen as vital and beneficial activities. STCC is a member in good standing of the NJCAA and MCCAC.

There are currently six inter-collegiate or club sport teams at STCC, including Men's soccer, basketball, and baseball along with Women's basketball, and softball. There is also a Spring golf team that is co-educational.

Intra-mural and recreational activities are geared to the desires of the student population. In the past, intra-mural and recreational activities have included flag football, basketball, bowling, softball, floor hockey, and volleyball.

The new Biological Sciences building contains a gymnasium, locker rooms, and other athletic facilities.

The intra-mural and recreational desires of the student body are assessed on a periodic basis so that these programs can change offerings as interests change.

STUDENT ACTIVITIES

The Student Activities Program is designed to complement the instructional programs by providing a variety of meaningful educational, cultural and social experiences. The Student Activities Center assists students and faculty in the planning of co-curricular programs and in the development of student organizations. The staff of the Student Activities Center, with student leaders, provides support to special planning groups and interested students in the promotion of activities on campus. The activities and organizations are open to interested students, faculty and staff.

The Student Government Association is a forum for student viewpoints and needs, which are brought to the attention of the College administration through the Student Senate. All students are members of the Student Government Association and are represented by the Student Senate, which meets regularly during the school year, and is elected annually by the student body.

Social, professional and other student organizations are considered an integral part of the College's total educational program. Students with common interests may form recognized student organizations.

Specific information on Student Activities can be found in the STCC Student Handbook.

COLLEGE BOOKSTORE

The college bookstore, located on the first floor of Building 27, is open every school day from 8:00 a.m. to 4:00 p.m. It is also open evenings during the first two weeks of the semester for the convenience of Continuing Education students. Books, school supplies, equipment for course work, as well as miscellaneous items are offered for sale, and used books are offered at discount prices. In addition, students can purchase their class rings, and arrange for magazine subscriptions at discount prices.

AWARDS

At the Honors Convocation held prior to Commencement, Outstanding Academic Achievement awards are given to graduating seniors who have achieved a 4.0 Quality Point Average. Other awards and scholarships are given to those students whose academic records in their departments are outstanding, and to those who have contributed significantly to the total College community through their co-curricular participation. Besides awards by the academic departments and divisions, College-wide awards include:

* Alumni Association Scholarship Awards
* Athletic Excellence Awards
* Board of Regents Scholarships
* Edmond P. Garvey Award
* Joseph J. Cooligan Award
* Lucille Goodson Parks Award
* Michael W. Scibelli Scholarship Award
* Minority Talent Roster for Outstanding Minority Community College Graduates
* STCC Scholarships
* Teresina B. Thompson Award
* Who's Who Among Students in American Junior Colleges

PARKING

Each year the College attempts to secure a maximum number of parking spaces in the general area of the campus for student parking, and in September the College publishes an updated list of independent parking areas located in the general vicinity of the campus. Parking spaces in many of these lots are controlled by the College, and parking permits are available for a reasonable fee from the Security Office. There is sufficient parking available on these lots for all students of the College. It should be noted also that, because the College is located on a National Historic Site, there are many areas on the campus where parking is not allowed; however, peripheral lots are located within easy walking distance of the classroom buildings.

MEDICAL AND EMERGENCY HEALTH SERVICE

Every student while on campus may seek the counsel and professional advice of the college nurse who has an office on the first floor of Building 16, Room 105. The nurse is on duty every school day from 8 a.m. until 4 p.m. Her extension is 3510. In case of any emergency, the number to call is Mercy Hospital Emergency Room, 781-9100, or Baystate Medical Center, Springfield Unit, Emergency Room, 787-3233. A physician is available on campus either on a walk-in basis or by appointment, on Monday, Tuesday, Thursday, and Friday from 11:00 a.m. to 12:00 p.m.

Academic Programs

In an attempt to provide the most comprehensive variety of educational experiences and match these with the specific needs of the individual student, the College offers many academic programs. In the main, these fall into four categories: College transfer programs, career programs, developmental education program, general education curriculum, and cooperative education program.

TRANSFER PROGRAMS

The transfer curricula are designed for students who plan to transfer to a senior college or university after completion of one or two years at STCC. The courses offered in these curricula are generally those required to provide a broad educational background before beginning specialization in a major field of study. A high quality of academic achievement, revealing seriousness of purpose and of sound habits of study, is the most important qualification for successful transfer.

Three transfer programs are offered at Springfield Technical Community College:

1. Business Administration
2. Engineering and Science
3. Liberal Arts and Sciences

Many students attending the College consider, at some point in their career, transferring to a four-year institution. There are numerous specific programs at STCC that are designed with that purpose in mind. Students enrolled in these programs should be in early and constant contact with a transfer counselor so that their course progress toward transferring to a four-year institution is expedited.

TRANSFER COUNSELING

Students intending to transfer to four-year colleges need to plan early in order to take courses or programs paralleling requirements at the college they hope to attend. Assistance, in the form of individual advisement is available from the Transfer Counselor in the Admissions Office. Catalogs, applications, and other resources are available in the Counseling Center. Prospective transfer students should also review the Commonwealth Transfer Compact information below.

COMMONWEALTH TRANSFER COMPACT

Students planning to transfer to a four-year college or university, particularly a public one, in Massachusetts may find the Commonwealth Transfer Compact most helpful in receiving the maximum award of transfer credit toward a baccalaureate degree.

The Massachusetts Board of Regional Community Colleges endorsed the Commonwealth Transfer Compact, in May, 1974, to facilitate student mobility in Massachusetts public higher education.

The Compact guarantees that a student who holds an A. A. or A. S. degree from a Massachusetts community college, and who subsequently transfers to a four-year public institution in Massachusetts, will be awarded at least 60 semester hours of work toward a baccalaureate degree.

An associate degree which is transferable as a unit (contingent upon acceptance for admission) under this policy must include the following courses:

a.) 6 hours of English/communications
b.) 9 hours of behavioral/social sciences
c.) 9 hours of humanities/fine arts
d.) 9 hours of mathematics/sciences
e.) the remaining credits to be on a college level.

These courses may be found in this catalog by referring to the Index of Course Subjects under the following prefixes:

English/Communications
LE - English (100/200 series)

Behavioral/Social Sciences
NE - Economics
NH - History*
NI - Political Science
NP - Psychology
NS - Sociology/Anthropology

Humanities/Fine Arts
LA - Art
LE - Literature (300/400 series)
LF - Foreign Languages
LM - Music
LX - Philosophy

Mathematics/Sciences
MB - Biological Sciences
MC - Chemistry
MM - Mathematics
MP - Physics

*Some colleges (e.g. UMass) consider history as a humanities course.

CAREER PROGRAMS

STCC offers a variety of Career programs that are designed primarily for the individual seeking two years of higher education and immediate job opportunities upon graduation. Such Career Programs are available in the Engineering Tech-

nologies, Business Administration, Health/Human Services, and Social Sciences. Each of the Career Programs offers a two-fold objective. The student receives a general education background to provide him/her with a better understanding of the community around him and a technical preparation designed around a specific occupation.

Career students who plan to continue their education beyond the two-year level are advised to consult with their College counselor early in the program.

DEVELOPMENTAL EDUCATION PROGRAM

The College offers developmental courses in math, science, English, and reading. Students enrolled in these courses receive support in the form of tutoring, progress evaluation, advising, and counseling as needed, with special attention toward fulfillment of students' academic career goals.

The General Studies/Developmental Education program identifies and guides students in "cores" of study based upon their selected fields of interest. Faculty advisors are assigned to the students from the academic departments into which each student aspires to matriculate.

The Individualized Learning Center (ILC) located in Building 17, Room 425, is the test/tutorial area for developmental mathematics. With the help of professors, audio tapes, peer tutors, and computer-assisted testing, students progress through various levels of mathematics at their own rate. In addition to their assigned class period, students may use the facilities at any time the ILC is open.

The Developmental English Department offers developmental writing and reading courses and a special course of study for students for whom English is not the native language. The department offers tutorial services through its Tutoring and Testing Center in Building 13, Room 101. The department also offers computer-assisted learning in the computer laboratory in 13/105 and a full-service language laboratory for English As A Second Language courses in 13/305.

GENERAL EDUCATION CURRICULUM

Students enrolled in a degree program are required to take a minimum of 20 credits in General Education. The configuration of courses is distributed among the Math and Natural Sciences, the Humanities, and the Social/Behavioral Sciences.

The purpose of General Education courses is to develop in students the capacity for critical thinking; the ability to communicate effectively; an appreciation for the arts and humanities; and an understanding of the historic basis of our modern, technological society. General Education also aims to assist in the development of people who are educated in mind, responsive to civic and social obligations, capable of adjusting to change, and learners for life.

Consult the individual departmental Course of Study for the specific distribution of general education courses required by each program.

COOPERATIVE EDUCATION AND CAREER PLACEMENT

This office offers a wide variety of employment-related services to students and alumni. The Cooperative Education program allows students to earn credit for taking advantage of part-time employment in their field while completing degree requirements. Career Placement assists students and alumni who are seeking

full-time or part-time employment after graduation. Both programs strive to bring students and the business community together for the mutual benefit of each.

Cooperative Education

In order to participate in Cooperative Education, a student must maintain a 2.5 quality point average. Most students participate in Cooperative Education during their third semester in an established major; however, it is possible to participate in the program prior to that point. Students are recommended into the program by the Assistant Director of Cooperative Education and Career Placement and/or the faculty coordinator; final approval is made by the Assistant Dean of Cooperative Education and Career Placement.

Once a student is accepted into the program, a job developer and the student work together in securing a qualified employment position. During the first week of job placement, a learning contract is executed by the student, the faculty coordinator, the employment supervisor, and the Assistant Dean of Cooperative Education and Career Placement. This learning contract outlines the learning goal and objectives, as well as the criteria to be used in grading.

The faculty coordinator meets regularly with the student, evaluates his/her work performance, and determines a letter grade at the end of the semester. Students may either receive a 3- or 6-credit Cooperative Education experience in one semester, depending on the number of hours to be worked and the type of responsibilities to be required of the student. A total of 9 credits may be earned in the program during a student's quest for a degree. Programs participating in Cooperative Education are:

- Automotive Technology
- Bio-Medical Instrumentation Technology
- Business Administration
  - Accounting
  - Finance
  - General Business
  - Management
  - Marketing
- Civil Engineering Technology
- Computer Information Systems
- Computer Maintenance Technology
- Early Childhood Education
- Electrical Technology
- Electronic Technology
- Engineering and Science Transfer
- Environmental Technology
- General Studies
- Graphic Arts Technology
  - Options: Printing Management
    Commercial Art
    Printing Technology
- Heat/Power/Air Conditioning Technology
- Landscape/Plant Science Technology
- Laser Electro-Optics Technology
- Law Enforcement/Criminal Justice
- Liberal Arts

Mechanical Technology
  Drafting and Design Technology
  Industrial Engineering Technology
  Metal Machining Technology
Microprocessing Technology
Office Administration
  Clerical Office Assistant
  Executive Office Administration
  Legal Office Administration
  Medical Office Administration
  Word Processing Management
Telecommunications Technology

Introduction to Cooperative Education

A one-credit course has been developed by the Office of Cooperative Education and Career Placement which addresses the needs of students not yet meeting the criteria for admission to Cooperative Education. "Introduction to Cooperative Education" provides an alternative means of entry into Cooperative Education. The course is designed to provide students with practical exposure to the workplace through stimulating participatory experiences including: off-campus business tours, on-site understudy sessions with a professional in the student's field of interest, and opportunities to practice interviewing skills. Successful completion of the course will permit students to enroll in the regular Cooperative Education program for job development and placement.

Career Placement

Career Placement offers employment assistance to both graduating students and alumni at each step in the career search process. From setting goals to securing employment, resources are available to help launch a successful career.

During the course of their academic programs, students are encouraged to seek assistance in career planning. Counseling is provided to help choose, change, or confirm career goals, in conjunction with academic advisors and the Counseling Center. Once a career goal is established, students work toward securing a position. Guidance in writing cover letters and resumes, and in developing interview skills necessary to the job search is available to students and alumni.

Current employment listings are available on a year-round basis, covering both the public and private sectors. Job postings through the Massachusetts Division of Employment Security and government listings, as well as locally- and nationally-based companies are accessible through this office. On- and off-campus interviewing is arranged to accomodate the needs of area employers and graduating students. A Career Resource Center, dedicated to serving the needs of students and alumni, is open throughout the academic year and during the summer. Complete with resource materials, the center contains a variety of information to assist in the career search process.

All graduating students are required to register with Career Placement during their final semester, by completing a Career Placement registration form. By doing so, students are eligible to participate in on- and off-campus company recruitment and other Career Placement activities.

The Office of Cooperative Education and Career Placement also maintains a record of summer/general employment opportunities. All students are invited to utilize this resource throughout the year.

Division Of Continuing Education

Through the Division of Continuing Education, the College meets a wide variety of community educational and training needs. Programs of both a credit and non-credit nature are offered on a year-round basis with the Fall and Spring semester dates closely paralleling those of the Day School. All courses offered during the summer, whether during day or evening hours, are operated by the Division of Continuing Education.

The Division of Continuing Education is designed to meet the needs of the community for higher education, while operating on a self-sustaining basis in accordance with the General Laws of the Commonwealth. The Division of Continuing Education provides:

1. Credit and non-credit courses in both general and specialized educational fields;
2. The opportunity to earn an associate degree or certificate in a wide range of programs;
3. Access to College courses at numerous extension centers for students who may not have convenient access to the Springfield campus;
4. Seminars, conferences, and on-site employee training programs for business, industry, and professional groups.

Offerings are designed to furnish opportunities to: (1) resident students of Springfield Technical Community College to supplement their work in the day division of the College by taking additional elective courses; (2) students of other colleges and universities to take courses for credit, transferable to their resident college; (3) high school students who wish to remove academic deficiencies before entering college in September; and (4) regional adult students who wish to update career skills, pursue a new career, or gain experience in a subject of specialized interest.

CENTER FOR BUSINESS/INDUSTRY DEVELOPMENT

The Center for Business/Industry Development channels the resources of STCC's faculty and staff to design, conduct, and evaluate training programs for employees of business and industry in Western Massachusetts.

Regardless of company size, the Division of Continuing Education's professional staff will work with company representatives to design a relevant and cost-effective training program for employees. The Division of Continuing Education is pleased to have provided a diverse range of training programs for employees of several area companies.

Curricula of the College

BUSINESS

BUSINESS ADMINISTRATION
- Accounting
- Finance
- General Business
  - Option: Transfer Compact
- Management
  - Option: Small Business Management
- Marketing

COMPUTER INFORMATION SYSTEMS/DATA PROCESSING

OFFICE ADMINISTRATION
- Clerical Office Assistant*
- Court Reporting
- Executive Office Administration
  - Options: Intensive
    - Non-Shorthand
    - Bilingual Spanish
- Legal Office Administration
  - Option: Intensive
    - Non-Shorthand
- Medical Office Administration
- Word Processing Management

ENGINEERING & SCIENCE TRANSFER

Engineering & Science Transfer
- Engineering Transfer Option
- Engineering Technology Core Option
- Computer Science Transfer Option
- Science Transfer Option
  - Biology Option
  - Chemistry Option
  - Mathematics Option
  - Physics Option
  - Pre-Medical/Pre-Dental/Pre-Veterinary Option
  - Pre-Pharmacy Option

*One-year certificate programs

ENGINEERING TECHNOLOGIES

Automotive Technology
Bio-Medical Instrumentation Technology
Civil Engineering Technology
Computer Maintenance Technology
Drafting Technology*
Electrical Technology
  Option: Robotics Technology
Electronic Technology
  Option: Microprocessing Technology
Environmental Technology
Graphic Arts Technology
  Options: Printing Management
    Commercial Art
    Printing Technology
Heat/Power/Air Conditioning Technology
Landscape/Plant Science Technology
Laser Electro-Optics Technology
Mechanical Technology
  Options: Industrial Engineering Technology
    Drafting & Design Technology
    Metal Machining Technology
Telecommunications Technology

HEALTH/HUMAN SERVICES

Cosmetology*
Dental Assistant*
Dental Hygiene
Human Services Associate
  Options: Generalist
    Gerontology
Medical Assistant
Medical Laboratory Technician
Nuclear Medicine Technology
  Option: Advanced Standing
Nursing
Physical Therapist Assistant
Radiation Therapy Technology
  Option: Advanced Standing
Radiography
Respiratory Care
Surgical Technology

LIBERAL ARTS AND SCIENCES

Early Childhood Education
Law Enforcement/Criminal Justice
Liberal Arts/General Studies
  Options: Industrial Arts Transfer
    University Without Walls
Liberal Arts Transfer
  Option: Fine Arts

*One-year certificate programs

Health/Human Services

Health - Human Services/Nursing

Clinical rotations are an integral part of all Health/Human Services/Nursing program curricula. The clinical component is based upon contracts negotiated with area health care facilities, physicians, dentists and educational facilities.

Final acceptance into the Health/Human Services/Nursing Program is conditioned upon the submission of all health forms to the College Health Service and review and acceptance of students by both the Dean of Health/Human Services and the Affiliation Agency Representative.

Students enrolled in Health/Human Services/Nursing, in addition to meeting the general requirements of the College must:

1. Meet the terms of the clinical affiliation agreement with the cooperating agencies.
2. Meet the specific academic requirements of their program of study.

The terms of the affiliation agreements require each student to:

1. Submit a pre-entrance physical examination completed by a licensed physician to the College Health Service for review by the Affiliating Agency and the College.

   ALL REQUIRED LABORATORY WORK, IMMUNIZATIONS, AND CHEST X-RAYS MUST BE COMPLETED PRIOR TO SCHEDULED AFFILIATIONS.

   The Affiliating Agency reserves the right to refuse to accept a student for placement who does not meet the Agency standards or who has not been immunized.
2. Carry a malpractice liability insurance policy. The College will arrange for this insurance coverage. The premium is to be paid by the insured student. Limits of coverage are to be determined by the College. At the present time, cost to the student is about $15.00 per year.
3. The College requires that all students in Health/Human Services and Nursing must wear the college student uniform and meet the requirements of the *Professional Dress Code* when on affiliation in clinical laboratory settings and at other times as designated by the respective departments.
4. Abide by the rules and regulations of the cooperating agencies.
5. Assume the cost of transportation to the clinical agencies and other related expenses such as meals etc.
6. Fulfill the academic requirements of the department enrolled in as well as those of the College.

The specific academic requirements of the Health/Human Service departments and Nursing division are set forth on the specific page dedicated to the program within this publication.

The College reserves the right to withdraw any student at any time from his/her program in Health/Human Services or Nursing who cannot be placed in a cooperating agency because of failure of the student to meet or comply with the terms of the affiliation agreement.

Many of the health profession's accrediting agencies have specific requirements both in theory and practice which must be met by the program of study in order to be accredited. Therefore, some curricula, in order to meet the hour requirements of their accrediting agency, have intersession and/or summer sessions in addition to the regular college semester. Students will *be charged for intersession and/or summer sessions at the regular Division of Continuing Education rate.* This is in addition to the regular college tuition which covers the semester course of study.

The clinical laboratories are scheduled according to available agency time and the needs of the program. Therefore, students may be scheduled on evenings and/or weekends by arrangement. You will be given notice in advance of such scheduling.

Cosmetology

The science of Cosmetology has shown rapid technological changes in recent years. One of the attractive features of cosmetology as a career is the relatively brief time it takes to become a licensed cosmetologist. Numerous job opportunities exist for graduates in the beauty field.

To be eligible to take cosmetology, a student must be a high school graduate, sixteen (16) years of age or older, with a satisfactory medical report. The student must have high school grades in transcript of C+ or better.

Upon successful completion of one thousand (1000) hours of training within a nine (9) month period required by the Massachusetts Board of Registration of Cosmetology, the student is qualified to take the written and practical National Examination in Cosmetology for licensure.

Minimum Grade Requirement: A student must maintain a minimum grade of C (73%) in each cosmetology course in order to qualify for graduation.

Attendance Requirement: Attendance is compulsory because of the minimum hour requirement for graduation. The College does not provide for make up time due to absenteeism. If a student fails to meet the attendance requirement he/she may be dropped from the program.

Course Prerequisites: Course AC 109 is a prerequisite of Course AC 209. Course AC 110 is a prerequisite of Course AC 210. AC 111 is a prerequisite of AC 212. If a student fails AC 109, AC 110, or AC 111 the first semester, he/she cannot continue the second semester. AC 209, AC 210, and AC 212 are Lab courses where the students practice their techniques and procedures on patrons; therefore, it is necessary for the student to pass the basic courses in the first semester. If a student fails AC 109, AC 110, or AC 111 in the first semester, he/she may reapply for the following Fall semester. In this case the Massachusetts Board of Cosmetologists must be notified.

Upon successful completion of requirements of this program, as listed below a **Certificate in Cosmetology** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
AC 100	Beauty Salon Management	3		3
AC 101	Cosmetology 1	3		3
AC 109	Applied Cosmetology 1	1	13	4
AC 110	Applied Cosmetology 2	1	13	4
AC 111	Aesthetics 1	1	3	2
		9	29	16

SEMESTER 2

AC 200	Basic Dermatology	3		3
AC 209	Applied Cosmetology 3	1	13	4
AC 210	Applied Cosmetology 4	1	13	4
AC 211	Cosmetology 2	3		3
AC 212	Aesthetics 2	1	2	2
		9	28	16

Dental Assistant

The Dental Assistant curriculum encompasses the multi-disciplinary team concept. Theoretical skills are attained in conjunction with supervised off-campus clinical affiliation experiences. The curriculum conforms to the standards which are required by the Commission on Accreditation of Dental and Dental Auxiliary Educational Programs. Upon successful completion of the program, the student graduates with a Certificate in Dental Assistant and is eligible to take the Dental Assistant National Board Examination.

The program in dental assisting is accredited by the Commission on Dental Accreditation of the American Dental Association, a specialized accrediting body recognized by the Council on Postsecondary Accreditation and by the United States Department of Education.

An applicant should be a high school graduate, or possess a G.E.D. equivalency with a college preparatory background in English, biology (with a lab), mathematics, and typing. The Scholastic Aptitude Test (SAT) is optional, but preferred. A verbal score of 350 is acceptable. The Nelson-Denny Reading Examination will be administered to those individuals who are accepted into the program. Application should be submitted to the Dean of Admissions. Students may choose to take their English requirements and General Psychology course during the College's summer sessions either preceding or following the academic year.

The Dental Assistant program has two primary objectives: to prepare the student for employment as a professional member of the dental team, functioning as a competent dental assistant after graduation; and to prepare and motivate the student to continue his/her dental education by obtaining a degree in dental hygiene, or a baccalaureate degree. Advanced degrees will enable the qualified student to participate in broader areas of the dental profession.

Dental assisting students must purchase a kit which is comprised of essential materials and supplies. In addition, other expenses will be required as the academic year progresses.

Clinical affiliation is conducted off-campus at various dental offices throughout Western Massachusetts. The student is responsible for providing transportation to and from each clinical and educational facility. The student is expected to be in full dress uniform during this portion of the curriculum.

The minimum grade requirement for the Dental Assistant Program is a grade of "C" (2.0) in each course. Upon the successful completion of requirements for this program, as listed below, a **Certificate in Dental Assistant** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
AD 100	Dental Asst. Techniques 1	2	2	3
AD 102	Oral Anatomy	2		2
AD 103	Dental Radiology 1	2	2	3
AD 104	Dental Materials 1	2	3	4
AD 105	Dental Sciences 1	2		2
MB 127	Func./Structure of Human Sys.	2	2	3
		15	9	20

SEMESTER 2

LE 203	Fundamentals of Speech	3		3
NP 100	General Psychology	3		3
AD 200	Dental Asst. Techniques 2	2	2	3
AD 201	Dental Sciences 2	3		3
AD 202	Dental Records	2		2
AD 203	Dental Radiology 2		2	1
AD 204	Clinical Affiliation		20	5
		13	24	20

Dental Hygiene

The Dental Hygiene program educates men and women to become vital members of the dental health profession. The two-year basic core curriculum leading to an Associate degree follows the guidelines adopted by the American Dental Association's Commission on Dental Accreditation. The graduate is eligible for licensing examination in each of the fifty States. She/he may transfer credits toward a Baccalaureate degree. The Dental Hygiene program is accredited by the Commission on Dental Accreditation of the American Dental Association, a specialized accrediting body recognized by the Council on Postsecondary Accreditation and by the United States Department of Education.

The curriculum is designed to provide the student a broad educational experience. The student is thus prepared to render preventive oral health services and dental health education. Students receive clinical experience, not only at the STCC Dental Hygiene Clinic, but also through assignments to clinical and educational facilities within Hampden County. Assignments are supervised by STCC faculty. Students are responsible for providing their own transportation to clinical and educational facilities. The purchase of an instrument kit is mandatory for each dental hygiene student.

All courses listed in the program curricula are required for graduation. The dental hygiene courses are restricted to the semester in which they appear in the curricula. The curriculum customarily is completed within two regular academic years. However, advanced placement will be given to those students qualifying through challenge exams and transfer credits.

Applicants for admission to the Dental Hygiene Program must be high school graduates or the equivalent. The candidate must have completed courses in Algebra 1, Algebra 2, or geometry, biology, and chemistry with grades of "C" or better. The SAT's are required for admission with minimum scores of 400 on both the verbal and math portions of the test.

Students must achieve a minimum grade of "C" (73%) or better in each Dental Hygiene course. In addition, students must attain a minimum grade of "C" (73%) or better in related science or general studies courses. The student who is unable to meet this minimum requirement will be withdrawn from the program. Application for re-entry will be based on the recommendations of the faculty and program coordinator.

Upon completion of the requirements for this program, as listed below, the degree of **Associate in Science in Dental Hygiene** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
MB 132	Anatomy & Physiology 1	3	2	4
MB 140	Biochemistry	3		3
AH 103	Oral Anatomy 1	2		2
AH 101	Clinical Practice 1	2	6	4
AH 104	Dental Radiology	2	2	3
		15	10	19

SEMESTER 2

MB 121	Microbiology	3	3	4
MB 232	Anatomy & Physiology 2	3	2	4
AH 200	Nutrition	2		2
AH 201	Oral Pathology	2		2
AH 202	Clinical Practice 2	2	8	5
AH 203	Oral Anatomy 2	2		2
		14	13	19

SEMESTER 3

NP 100	General Psychology	3		3
AH 300	Periodontology	2		2
AH 301	Dental Materials 1	2	3	3
AH 302	Pharmacology	2		2
AH 303	Clinical Practice 3	2	12	6
		11	15	16

SEMESTER 4

LE 203	Fundamentals of Speech	3		3
NS 100	Intro. to Sociology	3		3
AH 400	Community Dental Health	3		3
AH 401	Clinical Practice 4	2	12	6
AH 402	Applied Dental Auxiliary Skills	1	3	2
		12	15	17

Human Services Associate

This curriculum is designed to educate men and women for careers in Human Services. The Human Services Associate is prepared to deliver a range of services in mental health, developmental disabilities, social services, rehabilitation, education, and gerontology. Academic courses are coordinated with supervised practicum experience providing competency based education.The first year core curriculum prepares the student for second year concentration in the Generalist or Gerontology options. This multi-discipline, life cycle approach to human services practice prepares the graduate for employment and continuing education.

Supervised practicum is established through a contract between the College and cooperating community agency. Therefore, to be eligible for practicum placement, the student must meet College and agency requirements.

College requires the student to have:

1. Current completed physical examination record, including physical assessment, immunization and laboratory reports on file in the office of the College Nurse.
2. Current liability insurance policy as offered by the College.

Agency requires the student to have:

1. Referral from the Human Services Department faculty.
2. Agency interview prior to acceptance for placement.

The agency has the option to refuse to accept a student for placement. If the College is unable to successfully place the student with a contracted community agency, the student will be withdrawn from the program.

Minimum Grade Requirement: The Human Services student is required to earn a minimum grade of "C" (73%) in each of the following courses: AM 102 - Human

Services 1; AM 202 - Human Services 2; AM 302 - Human Services 3; AM 303 - Video In Human Services: Techniques; AM 304 - Group Dynamics: Theory and Practice; AM 305 - Organizational Behavior; AM 306 - Management in Human Services; AM 402 - Human Services 4; AM 403 - Video In Human Services: Applications; AM 404 - Group Process: Theory and Practice 2; AT 102 - Gerontology 1; AT 202 - Gerontology 2. The student is required to earn a 2.0 ("C") average for all other courses included in the Human Services Associate program curriculum. The student who is not able to satisfy this minimum grade requirement will be withdrawn from the program.

Upon the successful completion of requirements for this program, as listed below, the degree of **Associate in Science in Human Services Associate** will be awarded.

Common Core Curriculum (1st Year)

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
NP 100	General Psychology*	3		3
AM 102	Human Services 1	3	4	5
MB 138	Human Anatomy 1	3	2	4
AA 211	Health Science 3	1		1
		13	6	16

SEMESTER 2

LE 203	Fundamentals of Speech	3		3
NS 100	Intro. to Sociology	3		3
AM 202	Human Services 2	3	6	5
MB 238	Human Anatomy 2	3	2	4
BD 193	Computer Concepts for Human Services	1	2	2
		13	10	17

Human Services Associate/Generalist Option

SEMESTER 3

AM 302	Human Services 3	3	12	7
AM 303	Video in Human Services Techniques	1		1
AM 304	Group Dynamics: Theory and Practice	2		2
LE 202	Technical Report Writing	3		3
AM 305	Organizational Behavior	2		2
AM 306	Management in Human Services	1		1
		12	12	16

SEMESTER 4

NP 400	Principles of Normal/Abnormal Behavior	3		3
AM 402	Human Services 4	3	12	7
AM 403	Video in Human Services; Applications	1		1
AM 404	Group Process: Theory and Practice	2		2
	Elective (Note 2)	3		3
		12	12	16

NOTE (1): NP 101, 102, 103 - General Psychology modules interchangeable
NOTE (2): Recommended electives include: NS 200, NS 250, NS 300, LA 441

Human Services Associate/Gerontology Option

SEMESTER 3

NS 300	Sociology of Aging	3		3
AT 102	Gerontology 1	3	12	7
AM 303	Video In Human Services: Techniques	1		1
AM 304	Group Dynamics: Theory and Practice	2		2
AM 305	Organizational Behavior	2		2
AM 306	Management in Human Services	1		1
		12	12	16

SEMESTER 4

NP 400	Principles of Normal/Abnormal Behavior	3		3
AT 201	Gerontology 2	3	12	7
AM 403	Video In Human Services: Applications	1		1
AM 404	Group Process: Theory and Practice	2		2
LE 202	Technical Report Writing	3		3
		12	12	16

Medical Assistant

This two-year program prepares students to become health care providers who have multiple skills, qualities, and abilities, and are able to meet the rigorous demands of our health care delivery systems, be they at the hospital, clinic, neighborhood health center, health maintenance organization, insurance company, group practice or single physician's office. The program is jointly reviewed by the American Medical Association and the American Association of Medical Assisting,

and is accredited by the Committee on Allied Health Education and Accreditation of the American Medical Association. Graduates of the program are eligible to take the national certification examination for Medical Assistants and Phlebotomists.

The curriculum is designed to help students to assist in administrative and clinical experiences in varied health care agencies during the externship period by performing such duties as typing, recordkeeping, billing, basic blood and urine tests, as well as assisting the physician in carrying out the techniques of patient care such as performing electrocardiograms, assisting with minor surgery and phlebotomy, and assisting with physical examinations. STUDENTS MUST BE AWARE THAT THE EXTERNSHIP PERIOD WILL REQUIRE TRAVELING TO THE VARIOUS SITES, AND THAT THEY ARE RESPONSIBLE FOR THEIR OWN TRANSPORTATION. Graduates are qualified to accept positions in medical offices, clinics, health maintenance organizations, insurance companies, hospitals, ambulatory care centers, or any other area where their broad basic skills are needed.

Minimum Grade Requirements: To continue in the progression of courses offered in the Medical Assistant program, a student must obtain a grade of "C" (73%) or better in the following courses: AA 100 - Medical Assistant Techniques 1; AA 200 - Medical Assistant Techniques 2; AA 304 - Medical Assistant Techniques 3; and AA 301 - Introduction to Human Disease. Students must maintain an average grade of "C" or better in all other courses. ALL STUDENTS MUST ACHIEVE A LEVEL OF 073 IN MATH BEFORE ENTERING THE SECOND SEMESTER OF THE FRESHMAN YEAR. Medical Assistant courses are planned in conjunction with the clinical agencies, and may deviate from the College hours.

Upon successful completion of requirements for this program, as listed below, the degree of **Associate in Science in Medical Assistant** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
MB 104	Human Biology 1	3	2	4
BZ 101	Typewriting 1	2	3	3
AA 100	Med. Asst. Tech. 1	2	4	4
AA 101	Medical Terminology	3		3
AA 111	Human Sexuality	1		1
AA 112	Living & Dying	1		1
AA 113	Intro. to Health/Human Services	1		1
BD 192	Computers Concepts for Allied Health	1	2	2
		14	11	19

SEMESTER 2

LE 100	English Composition 1	3		3
AA 200	Med. Asst. Tech. 2	2	4	4
AL 407	Basic Lab. Procedures (Note 1)	2	2	3
MB 204	Human Biology 2	3	2	4
BM 303	Medical Office Pract. 1	2		2
BP 106	Med. Asst. Recordkeeping	1		1
MM 077	Math for Nursing	1		1
		14	8	18

SEMESTER 3				
NP 100	General Psychology	3		3
AA 301	Intro. to Human Disease	3		3
BZ 251	Medical Typewriting	2	2	3
AA 119	Applied Legal Concepts (Med. Asst.)	1		1
BB 311	Basic Legal Concepts	1		1
AA 304	Medical Asst. Techniques 3 (Note 2)	2	28	8
		12	30	19
SEMESTER 4				
LE 201	Business English	3		3
BZ 454	Med. Office Practice 2	3		3
	Elective: Social Science (or) Humanities	3		3
AA 320	Pharmacology	3		3
		12		12

Note 1: AL 407 required before affiliation
Note 2: AA 304 interchangeable for either third or fourth semester.

Medical Laboratory Technician

This program offers an integrated curriculum which provides the student with a background in general education the basic skills necessary to function in a clinical laboratory. Fundamentals in clinical microscopy, microbiology, hematology, immunohematology and clinical chemistry comprise the core curriculum. Clinical experience is obtained in a hospital laboratory with which the College has a contractual agreement. The clinical experience may not be sequential, but by arrangements, according to available clinical resources. In order to matriculate, students must have a minimum passing grade of "C" (75) in all required courses.

Applicants must have completed a college preparatory course in high school which included biology, chemistry, and mathematics. SAT scores must be 400 or greater in mathematics and verbal skills with a total score of 800 or higher. Graduates of the program are eligible for national certification by successfully passing a written examination given by a certifying agency.

Clinical laboratory practicum includes a spring and summer session which may not be sequential to the academic program, depending on availability of placement. This practicum starts on the ninth week of the spring semester. It may be planned in the fall semester, if placement is not available in the spring. Students must be mindful that placement will require travel and that they are responsible for their own transportation and maintenance. Students are charged tuition for the Summer Session at the regular Division of Continuing Education rate. This program is

accredited by the Committee on Allied Health Education and Accreditation of the American Medical Association and National Accrediting Agency for Clinical Laboratory Sciences. Upon successful completion of the program requirements as listed below, the degree of **Associate in Science in Medical Laboratory Technician** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
MC 101	General Chemistry 101	3	3	4
MB 133	Anatomy & Physio./MLT	3	3	4
AL 100	Intro. to Clinical Lab 1	2	2	3
AA 111	Human Sexuality	1		1
AA 112	Living and Dying	1		1
AA 113	Intro. to Health/Human Services	1		1
		14	8	17

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
MC 201	General Chemistry 102	3	3	4
AL 200	Intro. Med. Microbiology	3	4	5
MM 140	Statistics & Quality Control	4		3
		13	7	15

SEMESTER 3

MC 350	Instrumental Analysis	2	4	4
MB 140	Biochemistry	3		3
AL 300	Hematology & Coagulation	3	3	4
AL 302	Clinical Chemistry	3	3	4
		11	10	15

SEMESTER 4

AL 400	Immunohematology	3	3	3
AL 401	Parasitology	2	2	2
AL 402	Intro. to Immunology	2	2	2
AL 403	Clinical Lab Practicum 1	2	38	4
BB 311	Basic Legal Concepts	1		1
AA 211	Health Sciences 3	1		1
		11	45	13

SUMMER SESSION

AL 404	Clinical Lab Practicum 2	2	38	8

Nuclear Medicine Technology

Nuclear Medicine Technologists utilize radioactive materials or tracers for the diagnosis of diseases. When introduced into the body, a radiotracer behaves like its nonradioactive counterpart. Therefore, its location in the body can be traced by using an appropriate detector.

The Nuclear Medicine Technologist learns to prepare and administer the radiotracer, perform the radionuclide study which may include the use of a computer, and then produce a final qualitative or quantitative product, so that a diagnosis and/or treatment may be made by a physician who specializes in the field.

The Nuclear Medicine Technology program at STCC is a rigorous 24 months in length, beginning in September and ending two full years later. Students spend two or three days each week on clinical affiliation at Baystate Medical Center, the largest medical center in Western New England; Holyoke Hospital; Hartford Hospital; or Mercy Hospital. The rest of the week is spent at the College in courses. The curriculum includes two summer sessions.

Minimum course requirement for graduation in all subjects is a grade of "C" or better. A more complete description of the program requirements may be found in the Handbook for the Radiologic Sciences which is distributed at the beginning of each Fall semester. At graduation the student receives an Associate in Science in Nuclear Medicine Technology, and is eligible to apply for the national registry examination given by the ARRT and the Nuclear Medicine Technology Certification Board. The program is fully accredited by the Committee on Allied Health Education and Accreditation (CAHEA).

Applicants should have completed Algebra 1 & 2, chemistry, and a biological science. Students are responsible for cost of uniforms, radiation monitors, physical examinations, health insurance, liability insurance, books, calculator, and laboratory manuals.

Upon successful completion of the requirements listed below, the degree of **Associate in Science in Nuclear Medicine Technology** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
AZ 102	Intro. to Nuclear Medicine Tech.	3		3
AZ 103	Practicum 1		16	2
AA 101	Medical Terminology 1	3		3
AA 210	Health Science 2	2	2	3
MB 132	Anatomy & Physiology 1	3	2	4
MP 146	Radiation Protection	1		1
AZ 104	Orientation to Practicum	1		
		13	20	16

SEMESTER 2

AZ 207	Practicum 2		16	2
AA 111	Human Sexuality	1		1
AA 112	Living and Dying	1		1
AA 113	Intro. to Health/Human Services	1		1
AA 116	Intro. to Phlebotomy	1		1
MB 232	Anatomy & Physiology 2	3	2	4
BD 192	Computer Concepts for Allied Health	1	2	2
LE 100	English Composition I	3		3
AZ 302	Nuclear Imaging of Organs	3		3
		14	20	18

SUMMER 1 (12 Weeks)

AZ 209	Practicum-Summer I		40	5

SEMESTER 3

AZ 301	Practicum 3		24	5
MP 300	Radiologic Physics 1	3	2	4
AA 114	Cardiopulmonary Resuscitation	1		
AZ 204	Statistics and Instrumentation	3		3
AZ 111	Human Sexuality	1		1
AZ 112	Living and Dying	1		1
AZ 113	Intro. to Health/Human Services	1		1
		10	26	15

SEMESTER 4

AZ 401	Practicum 4		24	5
AZ 414	In Vitro and Non-Imaging Studies	2		2
AZ 411	Nuclear Cardiology & Other Organ Anal.	1		1
MP 400	Nuclear Physics 1	3	2	4
	Elective: English	3		3
AX 414	Radiation Biology	1		1
		10	26	16

SUMMER 2 (12 Weeks)

AZ 407	Radioassay Laboratory Practicum (4 Wks.)		40	2
AZ 410	Practicum-Summer 2		40	5
			80	7

Nuclear Medicine Technology
Advanced Standing Option

The Nuclear Medicine Technology program also offers the option of admission with advanced standing for students who have successfully completed the graduation requirements for the Radiation Therapy Technology or Radiologic Technology programs at STCC. Such students are eligible for a 16-month program in Nuclear Medicine Technology. Graduates of Radiation Therapy and Radiologic Technology programs from other institutions will also be eligible for advanced standing, but course requirements may vary depending on their academic background, employment background, and clinical hours of previous training.

Challenge examinations are available for the two semester physics sequence MP146; MP300; MP400. The Practicum sequence can also be evaluated and portions challenged. Potential applicants should notice that the program is very intensive and is virtually full-time for 16 months. Course deficiencies cannot be taken concurrently with the program. However, the program director can advise a remedial schedule for an extended semester(s) before entrance.

SEMESTER 1 (Fall)

No.	Course Title	Class	Lab	Credits
AZ 102	Intro. to Nuclear Medicine Tech.	3		3
AZ 204	Statistics and Instrumentation	3		3
AZ 304	Practicum (Into January)		30	3
AA 114	Cardio Pulmonary Resuscitation	1		
		7	30	9

SEMESTER 2 (Spring)

AZ 302	Nuclear Imaging of Organs	3		3
AZ 414	In Vitro and Non-Imaging Studies	2		2
AZ 411	Nuclear Cardiology	1		1
AA 116	Intro. to Phlebotomy	1		1
AZ 409	Practicum (Into May/June)		30	3
AX 414	Radiation Biology	1		1
		8	30	11

SEMESTER 3

AZ 407	Radioassay Lab Practicum (4 weeks)		20	2
AZ 410	Practicum-Summer 2		40	5
			60	7

SEMESTER 4 (Fall)

AZ 413	Practicum		40	5
AA 114	Cardio Pulmonary Resuscitation	1		
		1	40	5

Nursing

The nursing curriculum is planned to prepare men and women to be professional nurses who will be competent to render safe and effective nursing care to people within the normal life cycle, both in health and illness. The community-centered approach combines both liberal and technical education for the student within the College and community health facilities. The student who successfully completes the prescribed curriculum earns the degree of Associate of Science and is eligible to take the licensing examination to qualify as a Registered Nurse. The program is approved by the Massachusetts Board of Registration in Nursing. It also has full accreditation by the National League for Nursing. Prerequisites for admission to the Nursing Program call for the applicant to be a high school graduate or equivalent. The candidate also must have completed courses in algebra 2, chemistry and biology. The SAT's are required for admission with minimum scores of 450 on both the verbal and math portions of the test.

In order for a student to matriculate in the Division of Nursing, the student must maintain a quality point average of 2.30 in each nursing course.

Quality Point Average	Letter Grade	Numerical Grade
2.30	C+	77%

The final course grade is calculated as follows:

1. Term exams to be followed by one comprehensive final exam. Grading of these exams must average 2.30 (77%) in order to pass the course. These exams will have equal weight.
2. A student must pass the clinical portion of the course in order to qualify to write the final exam (grading for clinical portion is Pass-Fail). Transcript grade for clinical failure will be recorded as F.
3. An average of 2.30 (77%) on these exams is required to pass the course.

The final course grade, if below 2.30 (77%) will be recorded as a letter grade with transcript stamped: NOT ELIGIBLE FOR MATRICULATION IN NURSING. DATE

4. No more than one failed/withdrawn nursing course may be repeated.
5. Readmission to the program is at the discretion of the nursing faculty.

Eligibility for Promotion:

— Students must attend scheduled lectures and clinical hospital laboratories.
— Students must pass academically and clinically.
— Students must achieve a Q.P.A. of 2.0 (73%) in the natural and biological sciences.

The Nursing math module (MM 077) must be successfully completed prior to AN 100, or by the end of the twelfth week of AN 100. Students must attain at least a "C" in related science courses, or a cumulative grade point average of 2.0. The clinical segments of the Nursing courses are planned in conjunction with the clinical agencies, and may deviate from the College hours.

Policy for use of challenge examination for AN 100 for admission of L.P.N.'s with advanced placement to STCC Division of Nursing:

1. The challenge examination for L.P.N.'s will be administered only after an L.P.N. with current registration has been fully admitted as a student in the Division of Nursing.

2. Records of the student show that the accumulated theory and clinical experience of the student meet the curriculum requirements for School of Practical Nursing in Massachusetts.
3. Fee and procedure for the examination will be commensurate with established College policy. The Division of Continuing Education is in charge of registration for the Nursing Challenge Examination for L.P.N.'s, and requires registration one week prior to exam administration, accompanied by a fee of $7.50.
4. Guidelines that must be followed to successfully complete the challenge process for AN 100:
   A. Write the AN 100 Challenge Examination for L.P.N.'s. This will be scheduled for administration once only, at the end of August. A student has the privilege of writing the examination once; no retakes are permitted. This examination provides the L.P.N. with an opportunity to validate knowledge of the concepts usually presented in Nursing 1, which is the foundation for the subsequent nursing courses.
   B. Attainment of a 77% is the minimum passing grade in theory. (77% = C+ = 2.3 QPA) The challenge examination for AN 100 may not be retaken.
   C. Recommendations for individualized learning will be made after analysis of performance on challenge exam.
   D. Participate in a one-day knowledge and skill program.
5. Students who successfully complete the above guidelines will be entitled, upon paying a fee of $10 per credit ($70.00 total) to have their transcripts reflect 7 credits granted for AN 100.

Upon successful completion of requirements for the Nursing program, as listed below, the degree of **Associate in Science in Nursing** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
MB 132	Anatomy & Physiol. 1	3	2	4
NP 100	General Psychology	3		3
AN 100	Nursing 1	4	12	7
MM 077	Math for Nursing	1		1
*BD 191	Computers in Health Care	1		
		12	14	16

SEMESTER 2

LE 100	English Composition 1	3		3
MB 232	Anatomy & Physiol. 2	3	2	4
NP 400	Prin. of Norm./Abn. Behav.	3		3
AN 200	Nursing 2	4	12	7
		13	14	17

*May be challenged by students with prior experience.

SEMESTER 3				
MB 121	Microbiology	3	3	4
NS 100	Intro. to Sociology	3		3
AN 300	Nursing 3	4	15	9
		10	18	16
SEMESTER 4				
AN 400	Nursing 4	4	15	9
AN 401	Nursing 5	2		2
	Elective: Soc. Science	3		3
	Elective: Hum. (English)	3		3
		12	15	17

Physical Therapist Assistant

The objective of this program is to prepare men and women for employment in the physical therapy field. The graduate physical therapist assistant works under the direction and supervision of a registered physical therapist performing patient-related activities and other tasks required for the operation of the service. The two-year curriculum leading to an Associate Degree follows the guidelines adopted by the American Physical Therapy Association. The curriculum is designed to develop technical knowledge and skills and background information for understanding in anatomy, physiology, kinesiology, disease processes, psychological and interpersonal relations. In addition, emphasis is placed on ethical and legal aspects. Approximately one semester of the program is supervised practice in selected clinical settings. The program has full accreditation by the American Physical Therapy Association.

To be admitted to the program, an applicant must have completed high school level courses in Algebra 1 & 2, chemistry, biology, and four years of English. In addition, the candidate for admission must have achieved SAT scores of 450 on the math and 450 on the verbal sections of the test.

Minimum Grade Requirement: The Physical Therapist Assistant student must obtain a minimum grade of "C" (73%) in each of the following courses: AP300 - Medical Lectures; AP200 - Kinesiology; AP 100 - Physical Therapist Assistant 1; AP201 - Physical Therapist Assistant 2; AP301 - Physical Therapist Assistant 3; AP400 - Supervised Clinical Experience; AP401 - Supervised Clinical Experience; AP302 - Muscle Testing; and AP402 - Physical Therapist Assistant Seminar and MB132 - Anatomy and Physiology. In addition to the above requirement, the student must have earned a minimum of 61 credits with a cumulative quality point average of 2.0 in order to be eligible for graduation.

Without exception, failed courses in Physical Therapist Assistant require that the student reapply to the program. This privilege may be used only once.

It should be noted that a student must satisfactorily complete Anatomy & Physiology courses (MB 132, MB 232) before entering the third semester.

Senior students in Physical Therapist Assistant will take their Spring vacation during the week following their second five week affiliation. This will occur one or two weeks after the regularly scheduled College Spring vacation.

The graduate Physical Therapist Assistant is eligible to sit for the state licensing exam in Massachusetts. Proof of satisfactory completion of the program is required by the licensing board.

Upon the successful completion of the requirements for this program, as listed below, the degree of **Associate in Science in Physical Therapist Assistant** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
MB 132	Anatomy & Physiology 1	3	2	4
NP 100	General Psychology	3		3
AP 100	Phys. Therapist Asst. 1	2	4	4
NS 100	Intro to Sociology	3		3
		14	6	17

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
MB 232	Anatomy & Physiology 2	3	2	4
AP 200	Kinesiology	3	2	4
	Elective	3		3
AP 201	Phys. Therapist Asst. 2	2	4	4
		14	8	18

SEMESTER 3

AP 300	Medical Lectures	3		3
AP 301	Phys. Therapist Asst. 3	2	4	4
AP 302	Muscle Testing	1		1
	Elective	3		3
AA 211	Health Science 3	1		1
BB 311	Basic Legal Concepts	1		1
		11	4	13

SEMESTER 4

AP 403	Supervised Clin. Exp.		18	6
AP 404	Supervised Clin. Exp.		18	6
AP 402	Physical Therapist Asst. Seminar	1		1
		1	36	13

Radiation Therapy Technology

This program is designed to prepare students for entry-level positions as staff technologists, working as essential members of the health care team, using radiation for the treatment of disease. Students are exposed to the full range of radiation therapy equipment available and develop proficiency in delivering a planned course of treatment.

During the academic year, students spend alternating days in Practicum at the clinical sites and at the College for classroom instruction. The 12-week summer sessions involve full-time clinical instruction, and students are charged through the Division of Continuing Education.

This program offers an option aside from the two-year program: an Advanced Standing Option for graduates of related radiologic health programs.

Students must maintain grades of "C" (73%) or better in all subjects in order to be eligible for graduation from the program. Upon successful completion of the program requirements, the student is awarded the degree of Associate in Science in Radiation Therapy Technology. The program is accredited by the Joint Review Committee on Education in Radiologic Technology, and graduates are eligible to apply for the national examination administered by the American Registry of Radiologic Technology.

Applicants must have a high school diploma or equivalent, having completed Algebra 2, biology, and chemistry. Students are required to take the SAT's prior to entry.

Upon the successful completion of requirements for this program, below, the degree of **Associate of Science in Radiation Therapy Technology** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
AY 103	Practicum		8	2
AA 101	Medical Terminology 1	3		3
AA 210	Health Science 2	2	2	3
BB 311	Basic Legal Concepts	1		1
MB 132	Anatomy & Physiology 1	3	2	4
MP 146	Radiation Protection	1		1
AY 104	Intro. to Radiation Oncology	3		3
		13	12	17

SEMESTER 2

AY 207	Practicum		12	3
MB 232	Anatomy & Physiology 2	3	2	4
AY 209	Dosimetry & Treatment Planning	3	2	4
BD 192	Computer Concepts for Allied Health	1	2	2
LE 100	English Composition I	3		3
		10	18	16

SUMMER 1 (12 Weeks)				
AY 208	Practicum	3	37	5
SEMESTER 3				
AY 301	Practicum		20	5
AY 303	Radiographic Imaging	1		1
MP 300	Radiologic Physics 1	3	2	4
AY 304	Clinical Oncology 1	3		3
AA 114	Cardiopulmonary Resuscitation	1		
AA 111	Human Sexuality	1		1
AA 112	Living and Dying	1		1
AA 113	Intro. to Health/Human Services	1		1
		11	22	16
SEMESTER 4				
	Elective: English	3		3
AY 401	Practicum		20	5
MP 400	Nuclear Physics 1	3	2	4
AY 408	Clinical Oncology 2	2		2
AX 414	Radiation Biology	1		1
		9	22	15
SUMMER 2 (12 Weeks)				
AY 407	Practicum	3	37	5

Radiation Therapy Technology
Advanced Standing Option

The Radiation Therapy Technology program also offers the option of admission with advanced standing for students who have successfully completed the graduation requirements for Radiologic Technology or Nuclear Medicine Technology at STCC. Such students are eligible for a 12-month program in Radiation Therapy Technology. Graduates of Radiologic Technology and Nuclear Medicine Technology from other schools will also be eligible for advanced standing, but course requirements may vary depending on their academic and employment backgrounds. Applicants with clinical experience in Radiation Therapy may challenge the practicum, and will be evaluated for clinical competency during the interval between acceptance into the program and the start of the academic year.

Applicants who have graduated from hospital-based certificate programs in Radiologic Technology or Nuclear Medicine Technology are required to satisfy certain general education requirements in order to be eligible to receive an Associate degree. Credits may be obtained by the official Challenge system, by the CLEP program through the Division of Continuing Education, or by enrollment in the specified courses. The general education requirements are as follows: MB132-Anatomy & Physiology 1; MB133-Anatomy & Physiology 2; MP300-Radiologic Physics; MB400-Nuclear Physics; LE100-English Composition 1; English Elective.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
AY 104	Intro to Radiation Oncology	3		3
AY 304	Clinical Oncology 1	3		3
AY 303	Radiographic Imaging (NMT Only)	1		1
AY 311	Practicum		20	5
AA 111	Human Sexuality	1		1
AA 112	Living and Dying	1		1
AY 309	Clinical Orientation (Note 1)		12	
		9	32	14

INTERSESSION (3 weeks)

AY 312	Practicum		38	2

SEMESTER 2

AY 209	Dosimetry & Treatment Planning	3	2	4
AY 408	Clinical Oncology 2	2		2
AA 114	Cardiopulmonary Resuscitation	1		
AY 411	Practicum		20	5
		6	22	11

SUMMER 1 (12 Weeks)

AY 407	Practicum		40	5

NOTE (1): Two-week clinical orientation offered before the start of the academic year.

Radiography

The Radiography program prepares an individual to become a member of the allied health team, assisting in the diagnostic methodologies of radiology. The program is based on a twenty-four month curriculum, and students should expect to complete requirements within this two-year period.

The affiliate hospitals of Baystate Medical Center, the largest medical center in Western New England, provide the major clinical component. Travel arrangements to and from the affiliates are the responsibility of the student. Minor affiliations are available on a limited basis. Intersessions and summer sessions provide the major clinical component of the program. Additional clinical experience is assigned during the academic semesters. Students are charged for these periods according to College policy.

The College provides all didactic and laboratory classes. An energized x-ray unit, various phantoms (artificial body parts), and auxiliary equipment allow the student the development of psychomotor skills prior to patient exposure. Courses in anat-

omy and physiology, physics, computers, patient care, and general education complete the curriculum.

Upon completion of the program, students are eligible to apply for the national board examination in radiologic technology, administered by the American Registry of Radiologic Technology. In addition, students shall receive an Associate in Science in Radiologic Technology degree.

The program is accredited by the Committee on Allied Health Education and Accreditation (CAHEA) of the American Medical Association. Copies of the *Essentials of an Accredited Educational Program for the Radiographer* are available from the office of the program director.

In order for a student to matriculate in Radiologic Technology, he or she must maintain a quality point average of 2.0 (73%-76%) in each of the Radiologic (AX) courses.

Students not meeting the minimum grade requirement of "C" (73%) will be withdrawn from the program. For readmission, students must retake any failed courses and achieve at least a "C". Also, they must pass a challenge exam in any AX courses previously taken.

In addition, minimum course requirement for graduation in related science or general studies courses is a "C" (73%).

Applicants for admission to the program should have completed two years of high school algebra or MM 093 or its equivalent and one year each of biology and chemistry, and the S.A.T.'s.

NOTE: Clinical Orientation is required prior to Clinical Practicum.

Upon the successful completion of the requirements for the program, as listed below, the degree of **Associate in Science in Radiologic Technology** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
AX 111	Radiographic Positioning 1	3	2	4
AX 112	Image Production and Evaluation	2	1	2
AX 113	Medical Ethics and Law	1		1
AA 101	Medical Terminology 1	3		3
AA 210	Health Science 2	2	2	3
MB 132	Anatomy and Physiology 1	3	2	4
MP 146	Radiation Protection	1		1
		15	7	18

INTERSESSION 1 (1 Week)

AX 001	Clinical Orientation 1		40	

SEMESTER 2

AX 211	Radiographic Positioning 2	3	2	4
AX 212	Equipment Operation and Maintenance	2	1	2
AX 213	Clinical Practicum 1		16	2
MB 232	Anatomy and Physiology 2	3	2	4
LE 100	English Composition 1	3		3
		11	21	15

SUMMER 1 (9 Weeks)				
AX 214	Clinical Practicum 2		40	5
SEMESTER 3				
AX 311	Special Procedures in Radiography	2		2
AX 313	Clinical Practicum 3		24	3
MP 300	Radiologic Physics 1	3	2	4
AX 314	Radiographic Positioning 3	3	1	3
AA 114	Cardiopulmonary Resuscitation	1		
AA 111	Human Sexuality	1		1
AA 112	Living and Dying	1		1
AA 113	Intro to Health & Hum. Serv	1		1
		12	27	15
SEMESTER 4				
AX 411	Radiologic Pathology	1		1
AX 412	Ancillary Theory and Procedures	1		1
AX 413	Seminar/Quality Control	3		3
AX 414	Radiation Biology	1		1
AX 415	Clinical Practicum 4		24	3
	Elective: English	3		3
BD 192	Computer Concepts for Allied Health	1	2	2
MP 148	Advanced Radiation Protection	1		1
		11	26	15
SUMMER 2 (9 Weeks)				
AX 416	Clinical Practicum 5		40	5

Respiratory Care

Respiratory Care is a health specialty involved in the treatment, management, diagnosis and care of patients with lung disease and cardiopulmonary dysfunction. The Respiratory Care Practitioner is an expert in the use of therapeutic gases, ventilatory support, aerosol administration, bronchopulmonary drainage and exercises, cardiopulmonary resuscitation, medications, humidification and maintenance of natural, artificial and mechanical airways. Respiratory care practitioners are also involved in diagnostic testing, monitoring, treatment, education, and research. These include the measurement of lung volumes, pressures, flows, blood gas analysis and other related physiological monitorings.

For the tactful, stable and responsible man or woman, Respiratory Care offers the chance to work closely with patients in a career which is both personally and financially rewarding.

The graduate practitioner is assured of rapid advancement in a field where there are apt to be more jobs than practitioners to fill them. While the greater number of graduates work in hospitals or hold teaching positions, the future undoubtedly will see openings in industry, rehabilitation centers and home care programs.

This program is sponsored by the College in cooperation with area hospitals and home care agencies. It is fully accredited by the Joint Review Committee of Respiratory Therapy Education which cooperates with the Committee on Allied Health Education and Accreditation (CAHEA) of the American Medical Association, and is co-sponsored by the American Association for Respiratory Care, the American College of Chest Physicians, the American Society of Anesthesiology, and the American Thoracic Society.

The curriculum includes a summer session. Students are charged for this session at the regular Division of Continuing Education rate.

1. **Admissions Requirements**
   High School graduate or equivalent
   PREREQUISITES: College algebra (math MM 091, MM 092, MM 093 or its equivalent), biology, and chemistry.
   SAT's
   Students must submit a required health form prior to September 1 in the year of their initial enrollment.
   Any disabilities must be within safe limits for both students and patients. It should be noted that the affillating hospitals require by contract proof of satisfactory health, and reserve the right to refuse affiliation for students. Therefore, health status is subject to contract terms.
   Students' physical and mental ability must withstand the vigorous demands of respiratory care (i.e., able to climb stairs rapidly and work under stress).
2. **Academic Requirements**
   No grade lower than a "C" (73%) will be accepted toward graduation in respiratory therapy.
   Students not meeting the grade requirement of "C" (73%) for courses in the first and second semesters will be withdrawn from the program. Students not meeting the grade requirement for courses in the third and fourth semesters will be on probation for one additional year. Students must retake the course and achieve the minimum passing grade. Failure to receive a satisfactory grade within the probationary period will result in dismissal from the program.
   Failure in an affiliation course will result in dismissal from the program.
   Grades of less than "C" will not be accepted in transfer.

The following clinical lab courses may have a 7:00 A.M. starting time.
AR 213 Respiratory Rehabilitation
AR 307 Respiratory Care 3
AR 405 Respiratory Care 4
AR 406 Resp. Care Applied Clin. Science 2

Upon successful completion of requirements for this program, as listed below, the degree of **Associate in Science in Respiratory Care** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
AR 104	Introduction to Respiratory Care	3		3
AR 105	Respiratory Care 1	3	2	4
BB 311	Basic Legal Concepts	1		1
LE 100	English Composition 1	3		3
MB 132	Anatomy & Physiology 1	3	2	4
MB 140	Biochemistry	3		3
		16	4	18

SEMESTER 2				
AR 205	Respiratory Care 2	3	2	4
AR 206	Respiratory Pharmacology	3		3
BD 192	Computer Concepts for Allied Health	1	2	2
LE 200	English Comp. 2	3		3
MB 232	Anatomy & Physiology 2	3	2	4
		13	6	16
SUMMER 1 (8 weeks)				
AR 213	Respiratory Rehabilitation	4	20	6
SEMESTER 3				
AR 303	Intensive Respiratory Care	3		3
AR 305	Pulmonary Function Testing	2	2	3
AR 306	Resp. Care Applied Clin. Sci. 1	2		2
AR 307	Respiratory Care 3	3	12	6
MB 121	Microbiology	3	3	4
		13	17	18
SEMESTER 4				
AR 405	Respiratory Care 4		12	3
AR 406	Resp. Care Applied Clin. Sci. 2	2	8	4
AR 407	Neonatal and Pediatric Care	2		2
AR 408	Hemodynamic Monitoring	3		3
NP 100	General Psychology	3		3
		7	20	15

Surgical Technology

The objective of the Surgical Technology program is to prepare men and women to function as members of a surgical team, or as assistant to the surgeon, anesthesiologist, or professional nurse in the operating room, delivery room, emergency room or surgeon's office. The program combines theory and practice of surgical asepsis in the operating room, delivery room, emergency room and central service department. It is designed to develop knowledge and skill in maintaining aseptic techniques within the hospital area. The program has full accreditation from the Joint Review Committee On Education For the Surgical Technologist of the Committee on Allied Health Education and Accreditation of the American Medical Association. Degree requirements include the successful completion of one-year coursework, followed with another year of course work at the College, combined with clinical training. Students must maintain a minimum 2.0 Q.P.A. in the freshman year to be eligible for clinical training during the second year of the program. Prerequisites for admission to the Surgical Technology program call for the applicant to be a high school graduate or equivalent. The candidate also must have completed courses in Algebra 2, Chemistry and Biology, and have taken the SAT. Graduates of this program are eligible for the A.S.T., (A.O.R.T.) Certifying Ex-

amination approved by the A.S.T. (A.O.R.T.) Advisory Board composed of representatives from the Association of Surgical Technologists, Inc., Association of Operating Room Nurses, Inc., American Hospital Association and American College of Surgeons. The student enrolled in the Surgical Technology program must obtain a minimum grade of "C" (73%) in the following courses:

MB 132 Anatomy & Physiology 1
MB 232 Anatomy & Physiology 2
MB 121 Microbiology
AO 100 Foundations of ORT 1
AO 200 ORT 2
AO 301-303 ORT 3
AO 401-402 ORT 4
AO 400 Seminar/Surgical

Upon successful completion of requirements for this program, as listed below, the degree of **Associate in Science in Surgical Technology** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
MB 132	Anatomy & Physiol. 1	3	2	4
NP 100	General Psychology	3		3
AO 100	ORT 1	3	4	5
AA 111	Human Sexuality	1		1
AA 112	Living & Dying	1		1
		14	6	17

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
MB 121	Microbiology	3	3	4
MB 232	Anatomy & Physiol. 2	3	2	4
AO 200	ORT 2	3	4	5
		12	9	16

SEMESTER 3

AO 301	ORT 3	2	12	5
AO 303	ORT 3	2	10	4
AO 302	Pharmacology/ORT	3		3
	Elective: Social Science	3		3
MP 321	Intro to Laser Physics	1		1
		11	22	16

SEMESTER 4

AO 400	Seminar/Surgical	3		3
AO 401	ORT 4	2	12	5
AO 402	ORT 4	2	12	5
BP 312	Med. Law for Health Personnel	3		3
		10	24	16

Business

Business Administration

The Business Administration department offers a variety of programs to satisfy the needs of its students, whether it be the desire to transfer to a four-year college or university to complete the Baccalaureate Degree or enter the field of business directly from STCC. The main objective of the Department is to enable the student to develop those skills and proficiencies that are essential to the competent performance of professional work either in the classroom or on the job.

There is a comprehensive range of elective courses available in each of the degree programs. These electives allow the student and faculty advisor to structure a program consistent with specific interests and goals. The following illustrates the programs at STCC:

Associate in Science in Business Administration

- Accounting
- Finance
- Management
- Small Business Management Option
- Marketing
- General Business
- General Business/Transfer Compact Option

The Accounting, Finance, Management, Small Business Management, Marketing and General Business degrees or options require a minimum of 21 credits of liberal arts, math and science courses and the remaining 42 credits in business and general course electives. These programs are designed to meet career objectives or transfer goals to many four-year colleges. The General Business/Transfer Compact Option requires a minimum of 34 credits of liberal arts, math and sciences courses and the remaining 30 credits in business and general course electives. This program is designed to meet transfer requirements to four-year *Public* colleges or universities that are members of the Commonwealth Transfer Pact.

All candidates for graduation must complete a minimum of 63 credit hours as well as maintain a minimum grade point average of 2.0.

Transfer students are required to complete a minimum of 15 credit hours of Business Department courses at Springfield Technical Community College.

Challenge and CLEP exams covering a number of career and general courses are available at STCC.

CORE CURRICULUM:

The Department of Business Administration provides a common curriculum in the Freshman year for all Associate Degree programs, exposing students to a variety of introductory business courses before they choose a degree and a major. Before you can be completely scheduled, the College requires that you take math and English placement tests. Depending on your results, you will be assigned to one of the following English and math courses:

English

LD 090 Efficiency Reading Rates
LD 099 Communications Skills
LE 100 English Composition 1

Math

MM 071 Basic Math
MM 081 Elements of Algebra I
MM 091 Elements of Algebra 2
MM 122 Applied Math 1
MM 143 Business Statistics 1

Of these three English courses, only LE 100, English Composition 1, is accepted toward graduation. Of the five math courses, only MM 122, Applied Math for transfer students, or MM 143 Business Statistics for career students, are accepted toward graduation. While you might be placed in other math or English courses, and hence be required to complete them, these courses are considered as developmental by the College, and will not count toward graduation. If you have been out of school for a number of years, or are weak in math and/or English, it would be wise to review these skills before you take the placement tests. *In this way, you will give yourself the best chance of placing into an acceptable level of English and math.*

Freshman Year

Common Core Requirements for all Associate Degree programs.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
MM 143	Business Statistics 1 (or)			
MM 122	Applied Math 1 (Note 1)	3		3
BA 110	Accounting 1	5		4
BK 110	Principles of Management	3		3
BD 101	Computer Concepts	3	2	4
		17	2	17

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
	Math or Humanities or Social Science Elective (Note 1)	3		3
BA 210	Accounting 2	5		4
BF 110	Intro. to Finance (Note 2)	3		3
BI 110	Principles of Marketing (Note 3)	3		3
		17		16

NOTES:

(1) Transfer students **must** take MM 122 Applied Math 1 in Semester 1 and MM 222 Applied Math 2 in Semester 2. Career students should take MM 143 Business Statistics 1 in Semester 1 and MM 243 Business Statistics 2 or a Humanity or Social Science elective in Semester 2.

(2) Students enrolled in the Division of Continuing Education who are in the Business program and concentrating in the specialized area of banking, could substitute BF 111, Principles of Banking.

(3) Students enrolled in the Small Business Management Option should take BP 112 Small Business Marketing.

Business Administration—Associate in Science Degree

The information that follows illustrates the course sequence for the second year of study.

ACCOUNTING

The demand for trained accountants has increased substantially with the growth and complexity of business and government. Students of accounting, therefore, must follow a program of training which prepares them to handle the financial accounts of private and public organizations. The modern accountant must have an appreciation of all aspects of business organizations as well as technical proficiency in the following accounting matters: maintaining accurate accounting records; preparing and analyzing financial statements and cash flow reports; calculating payroll and payroll taxes; and understanding the basics of the partnership and corporate forms of business. Manpower projections have typically shown that accountants are among those who are in high demand and well paid.

Senior Year Courses

SEMESTER 3

No.	Course Title	Class	Lab	Credits
NE 100	Economics 1	3		3
NS 100	Intro. to Sociology (or)			
NP 100	General Psychology	3		3
BB 310	Business Law 1	3		3
BA 311	Cost Accounting	4		3
BA 310	Intermediate Acct. 1	4		3
		17		15

SEMESTER 4

NE 200	Economics 2	3		3
BA 410	Intermediate Acct. 2	4		3
BB 410	Business Law 2	3		3
BF 411	Managerial Finance (or)			
BA 313	Federal Income Tax	3		3
	Elective: General	3		3
		16		15

Upon the successful completion of the requirements for this program, as listed above, the degree of **Associate in Science in Business Administration-Accounting** will be awarded.

FINANCE

A study of the field of finance exposes the student to the sources and uses of money. Such a curriculum includes courses in the raising of new capital, the efficient use of available funds, investing, money and banking, the Federal Reserve System and other basic studies related to the monetary system. Emphasis is given to analysis of financial statements as well as fiscal planning and management.

Senior Year Courses

SEMESTER 3

No.	Course Title	Class	Lab	Credits
NE 100	Economics 1	3		3
NS 100	Intro. to Sociology (or)			
NP 100	General Psychology	3		3
BB 310	Business Law 1	3		3
BF 310	Money & Banking	3		3
BA 312	Managerial Accounting	3		3
		15		15

SEMESTER 4

NE 200	Economics 2	3		3
BB 410	Business Law 2	3		3
BF 411	Managerial Finance	3		3
BF 410	Investments	3		3
	Elective: General	3		3
		15		15

Upon the successful completion of requirements for this program, as listed above, the degree of **Associate in Science in Business Administration-Finance** will be awarded.

MANAGEMENT

The management program at STCC is designed to give the student a comprehensive background in the area of management. The curriculum is student-oriented primarily because its content respects the student's need for a challenging, thorough examination of the field of management, and because it provides a sound foundation for further study. In addition, specialized courses such as personnel, labor relations, finance, productions and operation research provide the student with the necessary knowledge to make positive contributions to any commercial or non-commercial organization.

Senior Year Courses

SEMESTER 3

No.	Course Title	Class	Lab	Credits
NE 100	Economics I	3		3
NS 100	Intro. to Sociology (or)			
NP 100	General Psychology	3		3
BB 310	Business Law 1	3		3
BK 310	Personnel Management	3		3
BA 312	Managerial Accounting	3		3
		15		15

SEMESTER 4

NE 200	Economics 2	3		3
BB 410	Business Law 2	3		3
BK 410	Labor Relations	3		3
BK 411	Production Management (or)			
	Elective: General	3		3
BK 413	Organizational Behavior	3		3
		15		15

Upon the successful completion of requirements for this program, as listed above, the degree of **Associate in Science in Business Administration-Management** will be awarded.

SMALL BUSINESS MANAGEMENT OPTION

In the Greater Springfield area many business are classified as small businesses by the Federal Government. Over the last few years the Federal and State governments have begun to recognize the importance of the small business in our society and community. In order that these businesses not be eliminated, special tax incentives and loan guarantees have been proposed and some enacted. In addition, Small Business Development Centers have been created across the state to provide increased technical assistance.

The Business Department believes that the owners and professional staff of small businesses need a specially tailored curriculum that will provide the technical expertise to operate successfully.

Senior Year Courses

SEMESTER 3

No.	Course Title	Class	Lab	Credits
NE 100	Economics 1	3		3
NS 100	Intro. to Sociology (or)			
NP 100	General Psychology	3		3
BB 412	Small Business Law & Insurance	3		3
BA 314	Small Business Planning & Control	3		3
BP 341	Small Business Personnel Management	3		3
		15		15

SEMESTER 4

NE 200	Economics 2	3		3
BP 342	Small Business Practicum	3		3
BP 343	Small Business Seminar	3		3
	Business Department Elective (Note 5)	3		3
	Elective: General	3		3
		15		15

NOTE (5) Any Business Department course except those introductory business courses in the 100 or 200 series.

Upon successful completion of requirements for this program, as listed above, the degree of **Associate in Science in Business Administration-Management** will be awarded.

MARKETING

In recent years, Marketing has become an increasingly important activity within our society and, in particular, in New England where there is a growing emphasis on the providing of services. Marketing is a broad field which includes defining and creating a market for a product, gauging and meeting customer wants and needs, advertising, sales, retailing, fashion and merchandising and related areas. Essentially, the study of marketing relates to the performance of business activities that direct the flow of goods and services from producers to consumers.

Senior Year Courses

SEMESTER 3

No.	Course Title	Class	Lab	Credits
NE 100	Economics 1	3		3
NS 100	Intro. to Sociology (or)			
NP 100	General Psychology	3		3
BB 310	Business Law 1	3		3
BI 310	Retailing	3		3
BI 311	Advertising & Promotion	3		3
		15		15

SEMESTER 4

NE 200	Economics 2	3	3
BB 410	Business Law 2	3	3
BI 411	Sales & Sales Mgmt.	3	3
BI 410	Consumer Behavior	3	3
	Elective: General	3	3
		15	15

Upon the successful completion of requirements for this program, as listed above, the degree of **Associate in Science in Business Administration-Marketing** will be awarded.

GENERAL BUSINESS

The General Business program allows students maximum flexibility in choosing Business Department electives covering the Accounting, Finance, Management and Marketing areas. The students receive a general overview and broad background in business subjects. This program may be preferred by those unable to decide on a major after completing the Freshman core business program (described previously) or by those contemplating transfer to a four-year college who want the flexibility of choosing business electives for a particular institution.

Senior Year Courses

SEMESTER 3

No.	Course Title	Class	Lab	Credits
NE 100	Economics	3		3
NS 100	Intro. to Sociology (or)			
NP 100	General Psychology	3		3
BB 310	Business Law 1	3		3
	Business Dept. Elective (Note 5)	3		3
	Business Dept. Elective (Note 5)	3		3
		15		15

SEMESTER 4

NE 200	Economics 2	3		3
BB 410	Business Law 2	3		3
	Business Dept. Elective (Note 5)	3		3
	Business Dept. Elective (Note 5)	3		3
	Elective: General	3		3
		15		15

NOTE (5) Any Business Department course, except those introductory business courses in the 100 or 200 series.

Upon the successful completion of requirements for this program, as listed above, the degree of **Associate in Science in Business Administration** will be awarded.

GENERAL BUSINESS/TRANSFER COMPACT OPTION*

While any of the previously mentioned programs could be used for transfer, the General Business/Transfer Compact program has been designed to meet the transfer requirements of four-year *Public* colleges or universities that are members of the Commonwealth Transfer Compact.

This program may be preferred by those wishing a greater mix of liberal arts; math and science courses. A total of 33 credits of such courses are required as compared to 21 to 24 credits in the other six (6) programs mentioned previously. In addition, if you desire to transfer to a *Public State College or University* that requires its incoming juniors to meet the transfer compact, then you should consider following this program.

*Please note that this program is a specially designed transfer program and not meant to be for all transfer students. You should consult with your advisor or the college's transfer counselor to decide which of the seven programs would best meet your transfer needs.

Senior Year Courses

SEMESTER 3

No.	Course Title	Class	Lab	Credits
NE 100	Economics 1	3		3
NS 100	Intro. to Sociology (or)			
NP 100	General Psychology	3		3
MM 142	Math Statistics, Business Calculus, (or)			
	Laboratory Science	3	2	4
	Humanities Elective (Note 7)	3		3
	Business Dept. Elective (Note 8)	3		3
		15	2	16

SEMESTER 4

NE 200	Economics 2	3		3
	Humanities Elective (Note 7)	3		3
	Humanities Elective (Note 7)	3		3
	Business Dept. Elective (Note 8)	3		3
	Business Dept. Elective (Note 8) or			
	General Elective	3		3
		15		15

NOTE (7) Humanities electives must be selected from art, College theatre, foreign language, music, philosophy and literature. The appropriate humanities for you would depend upon the public college to which you are planning on transferring. (Please discuss with your Advisor or the College's Transfer Counselor).

NOTE (8) Any Business Department course except those introductory business courses in the 100 or 200 series. The Business Department electives or general elective must be selected with care depending again on the public college to which you are planning on transferring. (Please discuss with your Advisor or College's Transfer Counselor). Students planning to transfer to UMass should consider taking BA 312 Managerial

Accounting and BB 310 Business Law 1. Students planning to transfer to Westfield State should discuss this with the Transfer Counselor or the Business Department chairperson.

Upon successful completion of requirements for this program, as listed above, the degree of **Associate in Science in Business Administration** will be awarded.

Computer Information Systems/Data Processing

The Computer Information Systems/Data Processing Department offers a choice of career opportunities for the student due to the variety of Program Languages taught. The curriculum is also structured to prepare the Transfer student for the course of study at the four-year college level. In recent years the utilization of all sizes of computers has extended into every area of business, whether large or small, and into most state and local government agencies. As a result, the need for trained personnel in various areas of computer utilization has increased sharply in the past few years, and is continuing.

The main objectives of the department are to enable the student to develop skills and proficiences that are essential to the future performance of professional work, whether it is in the classroom or on the job.

There is a range of elective courses available in all program offerings. These electives allow the student and faculty advisor to structure a program consistent with specific interests and future goals of the student.

All candidates for the Associate in Science Degree in Data Processing must complete the curriculum as shown in the catalog at the time of acceptance into the College, whether it be in the Day or Evening program. Prior to admission into the department, a student must successfully fulfill the requirements for placement in MM100 and LE100. A minimum grade point average of 2.0 is required in both general and specialized areas for graduation.

In some cases work experience may be recognized for course credit, e.g. Co-Op. Also, challenge exams covering a number of career and general courses, are available at S.T.C.C.

Upon the successful completion of requirements for this program, the degree of **Associate in Science in Data Processing** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
BA 110	Accounting I	5		4
BD 102	RPG 2 & 3	3	2	4
BD 105	Pascal	3	2	4
BZ 100	Keyboarding Skills (Note 1)	1		1
LE 100	English Comp 1	3		3
	Math Elective (Note 2)	3		3
		18	4	19

SEMESTER 2

BA 210	Accounting 2	5		4
BD 202	Advanced RPG 2 & 3 (or)	3	2	4
BD 205	Advanced Pascal			
BD 302	Structured COBOL	3	2	4
	Math Elective (See Note 2)	3		3
LE 200	Eng. Composition 2: Intro to Literature	3		3
		17	4	18

SEMESTER 3

BD 107	BASIC	3	2	4
BD 402	Advanced Structured COBOL	3	2	4
BD 313	Operating Systems	2	2	3
BK 110	Principles of Management	3		3
	General Elective (Note 3)	3		3
		14	6	17

SEMESTER 4

BD 305	Assembler Language	3	2	4
BD 314	Database Systems	2	2	3
BD 410	Systems Analysis & Design	1	4	3
	Elective: General (Note 3)	3		3
	Elective: General (Note 3)	3		3
		12	8	16

NOTE 1 This course is not required of students who can demonstrate a proficiency in Typing or may be replaced by BZ101 Typing I.

NOTE 2 Degree Candidates are required to have 3 credits of Math at level MM 103 or higher. MM 122 Applied Math 1 is recommended.

NOTE 3 CIS electives are:

*BD105 PASCAL	BD107 BASIC
*BD205 Adv. PASCAL	BD300 Microcomputer Appl
*BD 306 FORTRAN	BD405 Advanced Assembler

*Recommended for transfer students.

Office Administration

The Office Administration Department at STCC offers some of the most exciting programs on campus because its curricula reflect the rapid changes taking place in business offices. The modern office is being revolutionized by highly sophisticated electronic technology, and a "new breed" of office professional is emerging. The "Office of the Future" has already arrived, bringing with it integrated office systems and adminstration. The Massachusetts Division of Employment Security reports that 6,000 new office administration positions are created in Massachusetts each year, making it one of the fastest-growing job categories in the state. The

severe national shortage of office personnel, the rapid technological advances in office automation and office administration, and the new opportunities for increased earning potential and career advancement make the Office Administration Department an excellent choice for business training. It is predicted that office workers will total 90% of the working population by the year 2000.

The **Office Administration Department** offers several specialized degree and certificate programs. Men and women entering or re-entering the business world receive extensive training within each major - with special emphasis on information processing technology.

The **Executive Office Administration** program prepares the graduate for executive-level support positions with wide open career pathing. Since two-thirds of today's executives prefer hiring personnel with advanced shorthand training, Executive Office Administration majors may choose the intensive program which includes advanced training in shorthand for the electronic office and information processing technology, or the optional non-shorthand programs which emphasize language skills, speech, and computer information systems.

The **Legal Office Administration** program prepares the graduate for the very specialized atmosphere and demands of the legal profession. Essentially, the program is structured to train the student to be a professional legal/administrative assistant to lawyers, judges, courts, and corporate law departments. Since most legal employers prefer candidates with shorthand capabilities, Legal Office Administration majors may choose the intensive program which includes advanced training in shorthand for the electronic office and information processing technology, or the optional non-shorthand program which emphasizes language skills, speech, and computer information systems. Perfect for the highly-motivated individual seeking variety and challenge in a very prestigious and exciting field.

The **Medical Office Administration** program prepares the graduate for the highly specialized non-clinical medical office environment. With an extensive medical office administration background, this graduate would perform executive-level functions in such places as hospitals, medical centers, research centers, pharmaceutical and medical publishing houses, large corporations, and other business offices requiring a skilled and knowledgeable medical professional. Perfect for the medically-minded individual desiring non-clinical employment in the fascinating, challenging, and highly-specialized field of medicine.

The **Word Processing Management** program prepares the graduate to assume entry-level management positions in today's information processing business environment. Specific courses in computer information systems, office information systems, management, supervision, and communications prepare the graduate to both operate and supervise office information systems.

The **Court Reporting** program is a highly intensive study of court reporting that prepares the graduate for a career in government and/or court reporting as a reporter, note reader, free lance agent, or transcriptionist. All careers are based on the individual's machine shorthand proficiency at high rates of speed. Degree candidates receive training for the Massachusetts Certified Shorthand Reporter's Examination, and special emphasis is placed on compatibility with computerized machine shorthand.

Note: Degree candidates will be advised to follow special academic scheduling that may lengthen the number of semesters of enrollment in the program. Degree candidates are required to have a minimum QPA (Quality Point Average) of 2.7 throughout their program. Non-degree students must meet minimum standards of

the Admissions Office and the Office Administration department before being admitted into Machine Shorthand 1. Court Reporting is a very intensive, very prestigious, and very lucrative career field.

The **Clerical Office Assistant** certificate program is a one-year program that prepares the graduate for basic office responsibilities. Emphasis is on typing, filing, and machine transcription. A good program for the student with undefined career goals and/or the need to enter the job market as soon as possible. Most credits can transfer into the Executive and Legal Office Administration non-shorthand programs.

The Office Administration Department offers students the most up-to-date programs through its active memberships in the Association of Information Systems Professionals; Professional Secretaries, International (faculty CPS advises campus chapter); the National Association of Legal Secretaries, International; the American Management Society; the National Association of Female Executives; and the Massachusetts Shorthand Reporters Association.

Minimum English and Math Skills Requirements:

Students must place in LE 100 prior to registering for a full first semester course schedule.

Students must place through MM 073 prior to registering for Business Math, College Accounting, and/or Accounting 1. Students must place through MM 093 prior to registering for Business Statistics.

Before being scheduled into the Office Administration Department, the College requires that you take math, reading, and English placement tests. If you have been out of school for a number of years, or are weak in math and/or reading comprehension and English, it would be wise to review these skills before you take the placement tests. Depending on your results and your program, you might want to take some of the following English and math courses prior to your first semester:

English

LD 088 Basic Writing Skills
LD 090 Reading
LD 091-2 Reading Level 1- 2
LD 099 Communication Skills

Math

MM 078 Basic Mathematics Lecture
MM 087 Elements of Algebra 1
MM 097 Elements of Algebra 2

Special courses for bilingual students are:

LD 080-3-6 English As a Second Language, level 1,2,3
LD 081-4-7 English Reading Comprehension for Bilinguals 1-3

Minimum Grade Requirement: Students enrolled in th e Office Administration Department are required to achieve a "C" (73%) or better as a final grade in specified departmental offerings. A minimum quality point average of 2.0 is required in order to be eligible for graduation.

Minimum Speed Requirements: All students are required to achieve the minimum "Speed Requirements" in all departmental offerings.

Minimum Standards: All third and fourth semester students are required to achieve the minimum "Mailability Standards" in all departmental offerings.

Cooperative Education: Cooperative Education is available to eligible seniors who wish to enhance their education with work experience. Co/-Op work must follow the guidelines of the Department and the Cooperative Education Office.

CLERICAL OFFICE ASSISTANT (1 year)

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
LE 203	Fundamentals of Speech	3		3
BO 103	Office Asst. Procedures	2		2
BZ 101	Typewriting 1	2	3	3
BZ 105	Word Processing Editing	3		3
BZ 113	Records Management	1		1
MM 078	Mathematics (Note 1)	3		3
		17	3	18

SEMESTER 2

LE 201	Business English	3		3
BO 204	Intro to Machine Trans.	3		3
BZ 201	Typewriting 2	2	3	3
BZ 240	Business Calc. Machines	1		1
	Elective (Note 2)	3		3
MM 130	Business Math	3		3
BZ 103	Personal Use WP	1	1	1
		16	4	17

NOTE (1): Only if Placement indicates need. Math must be completed in one semester.

NOTE (2): RECOMMENDED ADDITIONAL ELECTIVES:

No.	Course Title
BB 301	Business Law 1
BD 101	Computer Concepts
BD 300	Micro Applications

Upon the successful completion of requirements of this program, a **Certificate in Clerical Office Assistant** will be awarded.

COURT REPORTING

PREREQUISITE COURSES

Students must pass the Court Reporting Typing Placement Test with a minimum speed of 50 WPM prior to entering the program. Students must pass the English placement test with an entrance score qualifying them for LE 100.

BZ 101	Typewriting 1	2	3	3
BZ 201	Typewriting 2	2	3	3
		4	6	6

SEMESTER 1

No.	Course Title	Class	Lab	Credits
AA 101	Medical Terminology 1	3		3
BC 102	Machine Shorthand 1	4	6	6
LE 100	English Composition 1	3		3
NL 110	Intro. to Criminal Justice	3		3
		13	6	15

WINTER INTERSESSION

BC 103	Machine Shorthand Skill Building 1	3	3	3

SEMESTER 2

BC 202	Machine Shorthand 2	4	6	6
MB 116	Terminology of the Human Body	3		3
LE 200	English Composition 2	3		3
	Elective: Humanities/Social Sciences	3		3
		13	6	15

SUMMER INTERSESSION

BC 203	Machine Shorthand Skill Building 2	3	3	3
BB 310	Business Law	3		3
		13	6	6

SEMESTER 3

BC 302	Machine Shorthand 3	4	6	6
BL 302	Legal Shorthand Terminology	1		1
BC 105	Court Reporting Editing	3		3
	Elective: Social Science/Humanities	3		3
		11	6	13

WINTER INTERSESSION

BC 303	Machine Shorthand Skill Building 3	3	3	3

SEMESTER 4

BC 402	Machine Shorthand 4	4	6	6
BC 403	Medical Dictation for Court Reptg.	1		1
BC 412	Court Reporting Technology	3		3
	Elective: Social Science/Humanities	3		3
		11	6	13

NOTE: Humanities and/or social sciences electives and English courses may be taken before enrolling in the Court Reporting program.

Following NSRA standards, to qualify for graduation, students of this program must achieve 180 WPM literacy, 200 WPM jury charge, and 225 WPM Q&A on two unfamiliar 5-minute tests with 95 percent accuracy. Sixty (60) WPM in typewriting is required for graduation. Many students require additional time with the program to achieve required skills.

Upon the successful completion of requirements for this program, the degree of **Associate of Science in Court Stenography** will be awarded.

EXECUTIVE OFFICE ADMINISTRATION INTENSIVE OPTION

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
NE 100	Economics 1	3		3
NS 100	Intro. to Sociology	3		3
BZ 101	Typewriting 1 (or)			
BZ 111	AVT/MLS Typing 1	3	2	3
BZ 102	Shorthand for the Electronic Office 1 (or)			
BZ 112	Shorthand Skill Building	3	2	4
		15	4	16

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
NP 100	General Psychology	3		3
BZ 105	Word Processing Editing	3		3
BZ 201	Typewriting 2 (or)			
BZ 211	AVT/MLS Typing 2	3	2	3
BZ 202	Shorthand for the Electronic Office 2	3	2	4
BZ 205	Word Processing Concepts	1		1
		16	4	17

SEMESTER 3

BE 301	Executive Typewriting	2	3	3
BE 303	Executive Office Practice	2		2
BB 310	Business Law 1	3		3
BP 101	Office Accounting 1 (Note 1)	3		3
BZ 302	Shorthand Speed Building	2	1	2
BZ 113	Records Mgmt	1		1
BZ 305	Word Processing Tech. 1 (Wang)	3	2	3
	Co-op (Note 2)	0	0	0
		16	6	17

SEMESTER 4

LE 201	Business English	3		3
BE 402	Exec Dict./Trans.	6		4
BZ 304	Mach. Transcription	3		3
BZ 240	Business Calculating Machines	1		1
	Elective (Note 3)	3		3
		16		14

Note (1): OR BA 110 Accounting 1

Note (2): BZ 397 Executive Cooperative Education available with approval of academic advisor

Note (3): Elective: CHOOSE 1

BZ 415 Word Proc. Tech. 2 (IBM)
BZ 405 Info. Proc. Off. Mgmt.
BZ 416 Advanced Word Processing Applications
BZ 497 Executive Co-Op
BK 312 Women, Management, and Leadership

Upon the successful completion of requirements for this program, the degree of **Associate in Science in Office Administration-Executive** will be awarded.

EXECUTIVE OFFICE ADMINISTRATION
NON-SHORTHAND OPTION

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
NE 100	Economics 1	3		3
NS 100	Intro. to Sociology	3		3
BD 300	Microcomputer Applications	3		3
BZ 101	Typewriting 1 (or)	3	2	3
BZ 111	AVT/MLS Typewriting 1			
		15	2	15

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
NP 100	General Psychology	3		3
BK 110	Princ. of Management	3		3
BZ 105	Word Processing Editing	3		3
BZ 201	Typewriting 2 (or)	3	2	3
BZ 211	AVT/MLS Typewriting 2			
BZ 113	Records Management	1		1
		16	2	16

SEMESTER 3

BE 301	Executive Typewriting 1	2	3	3
BE 303	Executive Office Practice	2		2
BP 101	Office Accounting 1 (Note 1)	3		3
BZ 205	Word Process. Concepts	1		1
BZ 304	Machine Transcription	3		3
BZ 305	Word Processing Tech. 1 (Wang)	3	2	3
BZ 240	Bus. Calculating Machines	1		1
	Co-op (Note 2)	0		0
		15	5	16

SEMESTER 4

LE 201	Business English	3	3
LE 203	Fundamentals of Speech	3	3
BB 310	Business Law 1	3	3
	Elective: Note 3	3	3
	Elective: Note 3	3	3
		15	15

Note (1): Or BA 110 Acct. 1

Note (2): Executive Cooperative Education available with approval of academic advisor

Note (3): Choose one of the following:
BZ 405 Info. Proc. Office Mgt.
BZ 415 Word Processing Tech. 2 (IBM)
BZ 416 Advanced WP Applications
BZ 497 Office Admin. Co-Op Educ.
BK 312 Women, Mgmt., & Leadership

Upon the successful completion of requirements for this program, the degree of **Associate in Science in Office Administration-Executive** will be awarded.

EXECUTIVE OFFICE ADMINISTRATION
BILINGUAL SPANISH OPTION

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
LF 321	Intermediate Spanish 1	3		3
BZ 101	Typewriting 1 (or)	3	2	3
BZ 111	AVT/MLS Typewriting 1			
BZ 240	Bus. Calculating Mach.	1		1
MM 078	Mathematics	3		3
ND 126	Study Skills Seminar	3		1
LE 203	Fundamentals of Speech	3		3
		19	2	17

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
LF 421	Intermediate Spanish 2	3		3
BD 300	Microcomputer Applications	3		3
BZ 201	Typewriting 2 (or)	3	2	3
BZ 211	AVT/MLS Typewriting 2			
MM 130	Business Mathematics	3		3
		15	2	15

SEMESTER 3

BE 301	Executive Typewriting	2	3	3
BE 303	Executive Office Practice	2		2
BZ 105	Word Processing Editing	3		3
BZ 205	Word Processing Concepts	1		1
BZ 305	Word Proc. Technology 1	3	2	3
NP 100	General Psychology	3		3
		14	5	15

SEMESTER 4

LE 201	Business English	3		3
BZ 113	Records Management	1		1
BZ 304	Machine Transcription	3		3
BZ 405	Info. Proc. Office Mgmt. (or)			
BZ 415	Word Processing Tech. 2 (IBM)	3	2	3
BP 101	Office Accounting	3		3
BZ 416	Adv. WP Applications (or)			
BZ 497	Office Administration Co-op			3
		13	2	16

RECOMMENDED ELECTIVES:

Note: BZ 397 and BZ 497 Executive Cooperative Education available with approval of academic advisor

BK 110 Principles of Management
BZ 200 Keyboard Skill Building
LF 122 Conversational Spanish

Upon the successful completion of requirements for this program, the degree of **Associate in Science in Office Administration-Executive** will be awarded.

LEGAL OFFICE ADMINISTRATION
INTENSIVE OPTION

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
NE 100	Economics 1	3		3
NS 100	Intro. to Sociology	3		3
BZ 101	Typewriting 1 (or)	3	2	3
BZ 111	AVT/MLS Typewriting 1			
BZ 102	Shorthand for the Electronic Office 1 (or)			
BZ 112	Shorthand Skill Building	3	2	4
		15	4	16

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
NP 100	General Psychology	3		3
BZ 105	Word Processing Editing	3		3
BZ 201	Typewriting 2 (or)	3	2	3
BZ 211	AVT/MLS Typewriting 2			
BZ 202	Shorthand for the Electronic Office 2	3	2	4
BZ 205	Word Processing Concepts	1		1
		16	4	17

SEMESTER 3

BL 301	Legal Typewriting 1	2	3	3
BL 302	Legal Shorthand Term.	1		1
BL 303	Legal Office Practice	2		2
BB 310	Business Law 1	3		3
BP 101	Office Accounting 1 (Note 1)	3		3
BZ 302	Shorthand Speed Building	1	1	1
BZ 240	Business Calculating Machines	1		1
BZ 305	Word Processing Tech 1	3	2	3
	Co-Op (Note 2)			
		16	6	17

SEMESTER 4

BL 402	Legal Dictation/Trans.	6		4
BZ 304	Machine Transcription	3		3
BZ 113	Records Mgmt.	1		1
	Elective (Note 3)	3		3
LE 201	Business English (Note 2)	3		3
		16		14

Note (1) Or BA 110 Accounting 1

Note (2): Legal Cooperative Education available with approval of academic advisor

Note (3) Elective: CHOOSE 1
BZ 415 WP Tech 2
BZ 405 Info. Proc. Off. Mgmt.
BZ 497 Legal Cooperative Education
BZ 416 Advanced Word Proc. Appl.
BK 312 Women, Mgmt., & Leadership

Upon the successful completion of requirements for this program, the degree of **Associate in Science in Office Administration-Legal** will be awarded.

LEGAL OFFICE ADMINISTRATION
NON-SHORTHAND OPTION

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
NE 100	Economics 1	3		3
NS 100	Intro. to Sociology	3		3
BD 300	Microcomputer Applications	3		3
BZ 101	Typewriting 1 (or)	2	3	3
BZ 111	AVT/MLS Typewriting 1			
		14	3	15

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
NP 100	General Psychology	3		3
BK 110	Principles of Mgmt.	3		4
BZ 105	Word Processing Editing	3		3
BZ 201	Typewriting 2 (or)	2	3	3
BZ 211	AVT/MLS Typewriting 2			
BZ 113	Records Management	1		1
		15	3	17

SEMESTER 3

BL 301	Legal Typewriting 1	2	3	3
BL 303	Legal Office Practice	2		2
BP 101	Office Accounting (Note 1)	3		3
BZ 205	Word Proc. Concepts	1		1
BZ 240	Business Caiculating Machines	1		1
BZ 304	Machine Transcription	3		3
BZ 305	Word Processing Tech. 1	3	2	3
	Co-Op (Note 2)			
		15	5	16

SEMESTER 4

BZ 240	Business Calculating Machines	1		1
LE 201	Business English (Note 2)	3		3
LE 203	Fundamentals of Speech	3		3
	Elective: (Note 3)	3		3
	Elective: (Note 3)	3		3
		13		13

Note (1): Or BA 110 Accounting 1

Note (2): BL 397 Legal Cooperative Education available with approval of academic advisor

Note (3): Choose one (1) of the following:
BZ 405 Information Processing Mgt.
BZ 415 Word Processing Tech. 2 (IBM)
BZ 416 Advanced WP Applic. (Wang)
BZ 497 Legal Cooperative Education
BK 312 Women, Mgt., Leadership

Upon the successful completion of requirements for this program, the degree of **Associate in Science in Office Administration-Legal** will be awarded.

MEDICAL OFFICE ADMINISTRATION

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
BZ 101	Typewriting 1	2	3	3
BZ 240	Bus. Calculating Mach.	1		1
AA 101	Medical Terminology 1	3		3
MB 104	Human Biology	3	2	4
BP 312	Med. Law for Health Personnel	3		3
		15	5	17

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
BM 303	Medical Office Practice	2	1	2
BP 103	Medical Office Acct. (Note 1)	3		3
BZ 201	Typewriting 2	2	3	3
AA 201	Medical Terminology 2	3		3
MB 204	Human Biology 2	3	2	4
		16	6	18

SEMESTER 3

NP 100	General Psychology	3		3
BM 301	Medical Typewriting	3	2	3
BB 310	Business Law 1	3		3
BZ 105	Word Processing Editing	3		3
BZ 113	Records Management	1		1
BZ 205	Word Proc. Concepts	1		1
BZ 305	Word Proc. Technology 1	3	2	3
	Co-Op (Note 2)			
		17	4	17

SEMESTER 4

LE 201	Business English	3	3
BM 454	Medical Machine Trans.	3	3
BK 110	Principles of Mgmt.	3	3
	Elective (Note 3)	3	3
	Elective (Note 3)	3	3
		15	15

Note (1): Or BA 110 Accounting I

Note (2): Medical Cooperative Education available with approval of academic advisor

Note (3): Choose one (1) of the following:
- BZ 405 Information Processing Management
- BZ 415 Word Processing Technology 2 (IBM)
- BZ 416 Advanced WP Applications (Wang)
- BZ 497 Medical Cooperative Education
- BK 413 Organizational Behavior
- BK 312 Women, Management, Leadership

Upon the successful completion of requirements for this program, the degree of **Associate in Science in Office Administration-Medical** will be awarded.

WORD PROCESSING MANAGEMENT

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
NP 100	General Psychology	3		3
BD 101	Computer Concepts	3	2	4
BZ 101	Typewriting 1 (or)	2	3	3
BZ 111	AVT/MLS Typewriting 1			
BZ 113	Records Management	1		1
MM 097	Mathematics	3		3
		15	5	17

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
BZ 105	Word Processing Editing	3		3
BZ 201	Typewriting 2 (or)	3	2	3
BZ 211	AVT/MLS Typewriting 2			
BZ 205	Word Process. Concepts	1		1
MM 143	Business Statistics	3		3
NE 100	Economics 1	3		3
		16	2	16

SEMESTER 3

LE 203	Fundamentals of Speech	3		3
BA 110	Accounting 1	5		4
BB 310	Business Law 1	3		3
BK 110	Principles of Mgmt.	3		3
BZ 304	Machine Dict. & Trans.	3		3
BZ 305	Word Processing Tech. 1	3	2	3
		20	2	19

SEMESTER 4

BZ 405	Info. Proc. Office Mgmt.	3		3
LE 202	Technical Report Writing	3		3
BK 413	Organizational Behavior	3		3
BW 498	Word Processing Co-Op			3
	Elective: (Note 1)	3		3
		12		15

Note (1): Choose one (1) of the following:
- BD 300 Microcomputer Applications
- BK 312 Women, Management, Leadership
- BZ 415 Word Processing Techniques 2 (IBM)
- BZ 416 Advanced Word Processing Applications (Wang)

Upon the successful completion of requirements for this program, the degree of **Associate in Science in Word Processing Management** will be awarded.

Liberal Arts and Sciences

Early Childhood Education

This course of study is designed to meet the ever-expanding needs for trained personnel in the field of early learning and child care. It provides both general education studies and specific skills gained through class and laboratory experiences.

Graduates of the two-year program will be prepared to assist teachers and other professionals in non-public, early learning environments such as infant care centers, family day care homes, group day care centers, nursery schools, private kindergartens, health care agencies, institutions and other schools and organizations offering early learning programs and/or child care services. The trained assistant will play an important role as a supportive member of the professional team involved in the daily care, development and education of the young child.

Applicants for admission to this program must be high school graduates or equivalent. Early Childhood students must earn a 2.0 quality point average (C) for each major course offering within the program. Included in this designation are Natural History, Music For Early Childhood Education, and prerequisite courses, as well as courses with an "NC" prefix. Upon the successful completion of requirements for this program, as listed below, the degree of **Associate in Science in Early Childhood Education** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
MB 100	Natural History	3	2	4
NC 100	Introduction to Early Childhood Education	3		3
N C 110	Child Growth & Develop.	3		3
NC 120	Early Child. Field Work 1		3	1
NP 100	General Psychology	3		3
		15	5	17

SEMESTER 2

LE 200	Comp 2: Intro. to Lit.	3		3
LM 134	Music for Early Child. Education	3		3
NC 210	Theories of Learn. & Personality Development	3		3
NC 200	Curriculum for Open Ed.	3	3	4
NC 220	Early Child. Field Work 2		6	2
		12	9	15

SEMESTER 3				
NP 400	Prin. of Abnor/Normal Behavior	3		3
NC 310	Survey of Curr. Early Learn. Programs	3		3
NC 300	Curriculum for Open Ed. 2	3	3	4
NC 315	Obser. & Recording of Child Behavior Seminar	1		1
NC 320	Obser. & Recording Field Study		9	3
NS 100	Intro to Sociology	3		3
		13	12	17
SEMESTER 4				
NC 400	Supervised Student Pract.		18	6
NC 420	Seminar and Critique	3		3
NC 450	Child Health, Nutrition & Safety	3		3
LE 203	Fund. of Speech	3		3
		9	18	15

General Studies

The General Studies Program, through a core structure cited by the National Commission on Excellence in Education, prepares students who:

— wish to earn an Associate in Arts degree and qualify for transfer to a four-year college;

— enter four-year degree programs offered jointly by STCC and UMass/Amherst, or STCC and Fitchburg State College;

— have made a career decision, but must complete prerequisites for a specific program, improve skills measured by SAT examinations, or generally confirm their commitment to a particular field;

— are undecided about career direction and seek an exploratory period leading to either a transfer program or an occupational curriculum.

— need to develop English language skills in order to work successfully in a given program.

The General Studies cores reflect these student priorities, offering curriculum and support services in program options as follows:

Core 1 - **Transfer:** for the student electing one of the degree or transfer programs;
* Commonwealth Compact option, page 46
* Industrial Arts Transfer option, page 110
* University Without Walls option, page 111, and Core 9 below;

Core 2 - **Health Careers Community:** for the student contemplating application to a program in the fields of Health/Human Services or Nursing, pages 54-79;

Core 3 - **Pre-Technology:** for the student contemplating application to a program in the Division of Engineering Technologies;

Core 4 - **Pre-Engineering and Pre-Science Transfer:** for the student who wishes to major in science or to prepare for the Engineering Transfer program of the College.

Core 5 - **Pre-Business or Service:** for the student who plans application to a program in Business, Computer Information Systems, Office Administration, Cosmetology, Early Childhood Education, or Law Enforcement;

Core 6 - **Billingual Program:** for students who need to develop English language skills, an intensive and accelerated curriculum in English As a Second Language, as well as transitional courses in mathematics and biology, with related counseling and support services;

Core 7 - **Special Admission** under the direct supervision of the Dean of Students;

Core 8 - Students not matriculating in a program;

Core 9 - **University Without Walls Program:** for students accepted into the bachelor's degree program offered jointly with UMass/Amherst, page 111.

Placement Testing

Both transfer and career programs require effective reading comprehension and English skills as well as a foundation in mathematics and science. Therefore, course assignments in these areas are based on the student's performance in a series of placement examinations taken after acceptance, but prior to scheduling and registration. Placement tests in mathematics, English, vocabulary development and reading comprehension are required of all entering students. It must be noted that, as prerequisites for college-level work, some courses may be required that are not applicable to the General Studies Degree.

Academic Advising and Counseling

General Studies counseling staff and faculty advisors assist students in making academic decisions, pursuing program objectives, completing graduation requirements, or intra-college transfers to a career program. Students should refer questions to their assigned counselor/advisor or to the General Studies Center staff, at extension 3480.

Introduction to College and Careers

In weekly meetings, the *Introduction to College and Careers* course (LS 091) offers to freshman students individualized support services and career orientation at no charge.

GS Student Information Booklet

Published yearly, this booklet summarizes pertinent information about department procedures, and serves as the student's personal record of courses completed toward a degree or intra-college transfer.

It is the student's responsibility to seek out information required and act upon it. The catalog and the General Studies Student Information Booklet constitute the official policy of the program in matters of graduation or transfer.

In summary, the General Studies Program involves the student in a broad range of subjects from the major academic areas; through the nine general electives allowed for the degree, its students are encouraged to explore career programs through electives in Business, Technologies, Health and Human Services. Developmental courses are available and may be required as prerequisites for English-speaking and Non-English speaking students alike, based on test performance.

Minimum requirements for the degree of Associate in Arts in Liberal Arts/ General Studies:

English/Communications:
- English Composition 1 — 3 credits
- ONE of the following:
  - Business English
  - English Composition 2
  - Journalism
  - Speech
  - Technical Report Writing — 3 credits

Mathematics/Sciences:
- ONE college-level, transferable course in Mathematics — 3 credits
- ONE college-level, transferable course in the Sciences — 4 credits
- ONE college-level, transferable course in either Mathematics or Science — 3 or 4 credits

Behavioral/Social Sciences:
- Introduction to Sociology (NS 100) — 3 credits
- General Psychology (NP 100) — 3 credits
- ONE of the following:
  - Economics 1
  - History or Political Science or
  - Cultural Anthropology Elective — 3 credits

Humanities/Fine Arts:
- TWO courses selected from:
  - Art
  - College Theatre
  - Foreign Language
  - Music
  - Philosophy — 6 credits
- ONE Literature Elective (LE 300 series) — 3 credits

General Electives:
NINE college-level, non-developmental courses selected from the curriculum in Humanities, Mathematics, Natural or Social Sciences, OR from the degree requirements of another College program.

27 credits

TOTAL OF 60 CREDITS REQUIRED

RECOMMENDED COURSE SEQUENCE

The following sequence is recommended; however, additional semesters may be required for students whose placement scores and/or high school background indicate a need to complete prerequisites for specific college-level courses.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
	Elective: General	3		3
NS 100	Intro. to Sociology (or)			
NP 100	General Psychology	3		3
	Elective: Math (See Note 1)	3		3
	Elective (Humanities): Art, Drama, Foreign Language, Music, or Philosophy	3		3
		15		15

SEMESTER 2

	Elective: Eng. Comm. (See Note 2)	3		3
	Elective: Sci. or Math	3		3
NP 100	General Psychology or			
NS 100	Intro. to Sociology	3		3
	Elective (Humanities): Art, Drama, Foreign Language, Music, or Philosophy)	3		3
	Elective: General	3		3
		15		15

SEMESTER 3

	Elective: Literature	3		3
	Elective: (Hist., Econ., or Pol. Sci.)	3		3
	Elective: Science or Math	3		3
	Elective	3		3
	Elective	3		3
		15		15

SEMESTER 4

	Elective	3		3
	Elective	3		3
	Elective	3		3
	Elective	3		3
	Elective	3		3
		15		15

(1) MM 101 - MM 103.
(2) Select from LE 200, LE 201, LE 202, or LE 203
NOTE: All courses presented for degree must be non-developmental and college-level to total 60 semester hours.

Students in Pre-Health, Pre-Technology, Pre-Engineering, or Pre-Service courses will find recommended priorities in the General Studies Information Booklet and should consult with their counselor or faculty advisor.

Upon the successful completion of requirements for this program, as listed above, the degree of **Associate in Arts in Liberal Arts (General Studies)** will be awarded.

INDUSTRIAL ARTS TRANSFER OPTION

The Industrial Arts program at Fitchburgh State College provides a unique blend of technical competencies and teaching skills, which in addition to general education, offers a variety of career opportunities within the public and private sectors.

Under a special articulation agreement, students enrolled in the Industrial Arts Transfer option at STCC pursue a curriculum leading to both the associate degree and transfer as juniors to Fitchburg State College or completion of the bachelor's degree sequence.

Interested students are invited to visit the General Studies Center or to call extension 3480 for further information.

Upon successful completion of requirements for this program, as listed below, the degree of **Associate in Arts in Liberal Arts (General Studies)** will be awarded.

SEMESTER 1

ET 110	Basic Electronics 1	3		3
FD 110	Drafting & Design 1	2	6	4
LE 100	English Composition 1	3		3
MM 132	Technical Math 1	4		4
NS 100	Intro to Sociology	3		3
		21	6	17

SEMESTER 2

ET 210	Basic Electonics 1	3		3
LE 200	English Composition 2	3		3
MM 232	Technical Math 2	4		4
NP 100	General Psychology	3		3
	Humanities elective	3		3
		16		16

SEMESTER 3

GA 120	Typography and Copy Prep	2	3	3
GC 120	Architectural Design & Spec.	2	6	4
MC 100	General Chemistry	3	3	4
NE 100	Economics	3		3
		10	10	14

SEMESTER 4

BD 101	Computer Concepts	3	3	4
GA 200	Layout & Copy Prep.	2	3	3
LE 203	Fundamentals of Speech	3		3
MP 119	Technical Physics	3	3	4
	Humanities elective	3		3
		14	9	17

UNIVERSITY WITHOUT WALLS TRANSFER OPTION

Students who are accepted into the University Without Walls program at the University of Massachusetts/Amherst have the opportunity of obtaining an Associate Degree in General Studies at STCC thorough a special Core 9 option. The University Without Walls is a UMass major that serves those people who are unable to earn a bachelor's degree through a traditional degree program. UWW students work with advisors and faculty to design an "area of concentration" that is, a field of study that is often interdisciplinary, and usually incorporates learning done through experience. University credit may be awarded for experiential learning.

UWW maintains an office on the STCC campus in Garvey Hall, room 267. For information about the program, call 732-5262.

The STCC/UWW General Studies option introduces adult learners to the culture of higher education; focuses on the development of reading, writing, and thinking skills; and offers students an opportunity to make connections between the content of a liberal arts education and real-life experience. Four interdisciplinary introductory courses are required in addition to other course-work. The first in the series is a UMass course offered at STCC; all other courses in the Core 9 option are STCC courses.

UWW 191G	Frameworks for Understanding (UMass course required in the first semester)
NN 100	Introduction to the Social Sciences
MP 100 or MB 100	Introduction to the Physical or Biological Sciences
LL 100	Introduction to the Arts and Literature

TOTAL OF 60 CREDITS REQUIRED

Completion of this program satisfies most, if not all, of the University of Massachusetts general education requirements.

RECOMMENDED COURSE SEQUENCE

The following sequence is recommended for full-time students; however, many students in Core 9 will be part-time, and may therefore complete the program through a different sequence.

SEMESTER 1

UWW 191G	Frameworks for Understanding
LE 100	English Composition 1
	Math Elective (104, 108, or 122)
	Social Sciences Elective (one from psychology, sociology, economics, political science, anthropology)

SEMESTER 2

LE 200	Composition 2: Introduction to Literature
NN 100	Introduction to the Social Sciences
	History (U.S. or Western Civilization)
	Science elective (physical or biological)

SEMESTER 3

MP 100	Introduction to Physical Sciences
LA 140	Art History
	Higher math elective (MM 155, MM 142 and 242, BD 101, etc.)
	Elective

SEMESTER 4

LL 100	Introduction to the Humanities
	Science elective
	Literature
	Elective

Note (1): At least one of the above courses must address questions of diversity or difference (i.e., LE 304 Survey of Black Literature, LE 308 Women In Literature, NZ 110 Introduction to Anthropology, NS 160 Multicultural-Multiethnic USA.

These recommended courses represent between 48 and 51 credits toward an associate degree at STCC. The remaining credits may be done in fields that will contribute to the University Without Walls area of concentration.

Upon successful completion of requirements for this program, as listed above, the degree of **Associate in Arts in Liberal Arts (General Studies)** will be awarded.

DEVELOPMENTAL COURSES AVAILABLE

For students in need of developmental studies, the following courses are sometimes required as prerequisites for college-level work; however, they cannot be applied as graduation or transfer credit.

LD 091-092	Effective Reading
LD 099	Communication Skills 1
LD 011-013	English as a Second Language I, II, III
LD 080	Study Skills (taught in Spanish)
LD 089	Basic English Conversational Skills I (Bilingual)
LD 031	Basic English Conversational Skills II (Bilingual)
LD 096	Basic Writing Skills for Bilinguals
LD 027	English Reading & Comprehension 1 (Bilingual)

LD 028	English Reading & Comprehension 2 (Bilingual)
LD 032	English Reading & Comprehension 3 (Bilingual)
MM 071-073	Basic Arithmetic
MM 081-083	Elementary Algebra
MM 091-093	Intermediate Algebra
MP 090	Basic Science I: Introduction to Chemistry
MB 090	Basic Science II: Introduction to Biology

Law Enforcement/Criminal Justice

A criminal justice program is offered primarily for students desiring to develop a career in Law Enforcement. In addition, students desiring a pre-law school course of study will find the Law Enforcement Program most advantageous as the case method of study is employed wherever possible. There is opportunity for in-service police officers who are desirous of improving their knowledge and abilities through study of specific police science courses and various general education subjects. The objective of this two-year program is to familiarize the student with legal, technical and practical aspects of law enforcement procedures. The ever-increasing crime rate, changing social order, changes in the criminal laws and major court decisions are all factors that have made the law enforcement officer's role one of extreme importance and ever-increasing complexity in modern society. Toward this end, the student will be provided with a strong background in the basic administration of justice as well as a general knowledge of the constitutional safe-guards as afforded in the Bill of Rights. This program also includes study in the social science area and a general choice of electives. Upon the successful completion of requirements for this program, as listed below, the degree of **Associate in Science in Law Enforcement** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
NS 100	Intro. to Sociology	3		3
NL 100	Criminal Procedures 1	3		3
NL 110	Intro. to Crim. Justice	3		3
	Elective	3		3
		15		15

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
NS 200	Social Problems	3		3
NL 200	Criminal Procedures 2	3		3
NL 230	Criminal Evidence	3		3
	Elective	3		3
		15		15

SEMESTER 3

NP 100	General Psychology	3	3
NI 100	Amer. Gov't & Politics	3	3
NL 300	Criminal Law 1	3	3
NL 340	Criminal Investigation	3	3
	Elective	3	3
		15	15

SEMESTER 4

LF 122	Conversational Spanish	3	3
NP 400	Prin. of Normal/Abnormal Behavior	3	3
NL 400	Criminal Law 2	3	3
NL 450	Law Enforcement Mgmt. and Planning	3	3
	Elective	3	3
		15	15

Liberal Arts Transfer

LIBERAL ARTS TRANSFER OPTION

The Liberal Arts Transfer curriculum is designed to parallel the first two years of a four year institution's liberal arts program. It is for students who intend to transfer to a senior college and work toward a bachelor's degree. The minimum requirements for the degree are 61 semester hours (20 courses), a minimum cumulative quality point average of 2.0, including 6 credits of English Composition, 15 credits in the Humanities, 15 credits in the Social Sciences, and 14 credits in Mathematics and Natural Sciences. Up to six credits may be earned through Cooperative Education. Upon the successful completion of requirements for this program, as listed below, the degree of **Associate in Arts in Liberal Arts Transfer** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
	Math: MM 101-103; MM 120; MM 122	3		3
	Liberal Arts Elective (Spanish Recommended)*	3		3
	History: Survey of Early Western Civilization or Early US History	3		3
NP 100	General Psychology	3		3
		15		15

SEMESTER 2				
LE 200	Comp. 2: Intro. to Lit.	3		3
	History: Survey of Modern Western Civilization or Modern US History	3		3
	Liberal Arts Elective (Spanish Recommended)*	3		3
	Natural Lab Science	3	3	4
NS 100	Intro. to Sociology	3		3
		15	3	16
SEMESTER 3				
	Literature Elective	3		3
	Laboratory Science or Math	3		3
	Liberal Arts Elective (Spanish Recommended)*	3		3
LE 203	Fundamentals of Speech	3		3
NE 100	Economics 1	3		3
		15		15
SEMESTER 4				
	Literature Elective	3		3
	Liberal Arts Elective (Spanish Recommended)*	3		3
NI 100	Am. Govt. and Politics or Math or Science Elective	3		3
	Liberal Arts Elective	3		3
	Humanities Elective**	3		3
		15		15

*Liberal Arts Electives include: Math, Science, Social Sciences, Humanities/Fine Arts.

**Humanities Electives include: Art, Music, Drama, Philosophy, Introduction to Humanities

FINE ARTS OPTION

This Fine Arts Option is designed to parallel the first two years of a four-year college's art major. Students must complete a common core of liberal arts subjects (3 English/rhetoric; 3 math/science; 3 social science) and a fine arts core (Art History 1 and 2; Basic Drawing; Basic Design.) Seven electives must be chosen from liberal arts courses. A sample curriculum follows:

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LA 146	Intro. To Art: Basic Design	3		3
LA 147	Basic Drawing	3		3
	College Level Math	3		3
LE 100	English Composition 1	3		3
NP 100	General Psychology	3		3
		15		15

SEMESTER 2

LA 142	Painting 1 (or) other Elective	3		3
LA 149	Drawing Composition (or) other Elective	3		3
LE 200	Comp. 2: Intro to Literature	3		3
	Math or Lab Science	3	2	4
LA 143	Printmaking 1 (or) other Elective	3		3
		15	2	16

SEMESTER 3

LA 140	Art History: Prehistoric to Gothic	3		3
NS 100	Intro. to Sociology	3		3
LA 242	Painting 2 or other Elective	3		3
	Elective: Lab Science	3	2	3
	Elective: Literature	3		3
		15	2	15

SEMESTER 4

LA 145	Figure Drawing (or) other Elective	3		3
LA 240	Art History: Ren. & Baroque	3		3
LA 243	Printmaking 2 (or) other Elective	3		3
	Elective	3		3
	Elective: Social Science	3		3
		15		15

Upon the successful completion of the requirements for this program, the degree of **Associate in Arts in Liberal Arts Transfer** will be awarded.

Engineering Technologies

Automotive Technology

The two-year Automotive Technology curriculum consists of practical work experience in engine testing, servicing and repairing cars as well as a study of related technical subjects. A knowledge of basic scientific principles and technical information is emphasized so that students can understand why mechanical and technical difficulties occur. Instruction in management and business operations is included in this program to prepare graduates for junior supervisory positions in the automotive field. Major areas to be covered are engines, transmissions, differentials, brakes, carburetors, electronic fuel systems, electrical systems, computers, and front-end suspensions. The instructional strategies rely on lectures, demonstrations, overhead projectors, slide films, charts, textbooks and student participation in laboratory assignments. New large quarters accommodate both classroom and shop labs. Graduates are prepared for employment as automotive service technicians, salesmen, and managers and many other areas related to the automotive field. Students in the Automotive Technology program must receive a grade of "D" or better. Attendance is a requirement and is taken into consideration. Upon the successful completion of requirements for this program, as listed below, the degree of **Associate in Science in Automotive Technology** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
IA 110	Gasoline Engine Systems	2	2	3
IA 120	Drive Line & Air. Cond.	2	2	3
FA 130	Machine Tool Techniques		3	1
MM 101	Mathematics	1		1
MM 102	Mathematics	1		1
MM1 03	Mathematics	1		1
	Elective: Social Science	3		3
		13	7	16

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
MC 100	Chemistry 1	3	3	4
IA 210	Gasoline Engines Service	2	2	3
IA 220	Auto. Transmissions	2	2	3
IA 230	Automotive Graphics	1	2	2
		11	9	15

SEMESTER 3

MP 119	Technical Physics	3	3	4
NE 100	Economics 1	3		3
BP 101	Office Accounting 1	3		3
IA 310	Fuel & Electric Systems	2	2	3
IA 330	Brakes & Suspension	2	2	3
		13	7	16

SEMESTER 4

MC 300	Automotive Chemistry	3	3	4
LE 202	Technical Report Writing	3		3
BK 421	Small Business Formation	3		3
IA 420	Engine Diag. & Tune-up	2	2	3
IA 430	Adv. Automotive Systems	2	2	3
		13	7	16

Bio-Medical Instrumentation Technology

Instrumentation is being used increasingly in medical, biological and research fields. This equipment has become so complex that technicians must have a detailed knowledge of biomedical procedures and biomedical terminology so that proper functioning of the equipment and safety of the patient can be assured. The program provides the general technical knowledge and understanding of the more commonly used bio-medical instruments, components, systems and circuit techniques. Minimum Grade Requirement: Bio-Medical Technology students shall maintain a minimum grade of "C" (2.0) for all departmental courses. A grade of "C" or lower will be considered a poor level of performance in any course. Upon the successful completion of requirements for this program, as listed below, the degree of **Associate in Science in Bio-Medical Instrumentation Technology** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
	Elective: Social Science	3		3
EB 120	Measuring Principles 1	2	3	3
ET 110	Basic Electronics 1	3		3
ET 115	Electronics Lab 1		4	2
MM 101	Mathematics	1		1
MM 102	Mathematics	1		1
MM 103	Mathematics	1		1
		14	7	17

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
EB 230	Measuring Principles 2	2	3	3
ET 210	Basic Electronics 2	3		3
ET 220	Active Networks 1	3		3
ET 215	Electronics Lab 2		4	2
MC 100	Chemistry 1	3	3	4
		14	10	18

SEMESTER 3

EB 310	Bio-Med Systems 1	3		3
EB 340	Digital Electronics Lab		4	2
EB 330	Semiconductors Lab		4	2
EB 350	Digital Electronics	3		3
LE 202	Technical Report Writing (or)			
NE 100	Economics (or)			
	Elective: Social Science	3		3
	Elective: Humanities	3		3
		12	8	16

SEMESTER 4

EB 410	Bio-Med. Systems 2	2	2	3
EB 420	Instrumentation Project		4	2
EB 430	Codes-Laws-Safety	1		1
ED 420	Microprocessor Theory	3		3
MB 136	Applied Physiology	3	3	4
EB 440	Integrated Circuits	3		3
IT 420	Schematic Reading	1		1
		13	9	17

Civil Engineering Technology

The Civil Engineering Technology program is designed to provide an engineering background for persons who wish to enter the building and construction industry as engineering technicians, architectural draftsmen, or as construction managers. Students completing this program should also be able to begin work in the areas of surveying and estimating. The design and construction of residential and light commercial structures are stressed. Certain phases of heavy construction and highway development are also covered. Students planning to enter this program should have interests in mathematics and science. However, creative ability is also required in the design laboratories involved in this program. Minimum Grade Requirement: All departmental courses shall be satisfactorily completed. A satisfactory grade shall be defined as one having a letter grade "D" (63%) or 1.0 Q.P.A.) or above. Any course failed must be repeated before graduation and each course may be repeated only once. The student must achieve an overall Q.P.A. of 2.0 at the completion of the department course of study. In addition, he must remain in good academic standing as outlined below: A.) At the beginning of the second semester, the student must maintain a 1.5 Q.P.A.; B.) At the beginning of the third semester, the student must maintain a 1.7 Q.P.A.; C.) At the beginning of the fourth semester, the student must maintain a 1.9 Q.P.A. Any student not meeting the above academic requirements will be placed on academic probation for one semester. If, at the end of this period, no improvement has taken place to bring the Q.P.A. to the required academic level, the student will be removed from the program. Each student must complete Math MM 132 before he/she will be allowed to enter into any of the Civil Engineering series of courses in the 3rd, or 4th semester and MM 232 must be completed before any 4th semester civil

engineering courses can be taken. Upon the successful completion of the requirements for this program, as listed below, the degree of **Associate in Science in Civil Engineering Technology** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
GC 110	Construction Materials	2		2
GC 120	Arch. Design & Spec. 1	2	6	4
GC 130	Const. Methods & Equipment	2		2
MM 132	Technical Math 1*	4		4
LE 203	Fundamentals of Speech	3		3
		16	6	18

SEMESTER 2

LE 202	Technical Report Writing	3		3
MP 119	Technical Physics	3	3	4
GC 220	Const. Estimating	2	3	3
GC 230	Hydraulics and Drainage	1	2	2
MM 232	Technical Math 2 **	4		4
		13	8	16

SEMESTER 3

GC 310	Surveying	2	6	4
GC 320	Soils & Foundations	3		3
GC 340	Statics	2	3	3
FB 230	Intro to CAD	2	4	3
NE 100	Economics 1	3		3
		12	13	16

SEMESTER 4

GC 410	Reinf. Concrete Analysis***	2	3	3
GC 420	Construction Management	3		3
GC 430	Transportation and Engineering	2	3	3
BD 195	Computer Concepts/Technical	2	2	3
GC 440	Structures 1 ***	2	3	3
GC 450	Materials Testing Lab****	1	2	2
		12	13	17

*Note: MM 132 must be completed before any 3rd or 4th semester civil engineering courses can be taken.

**Note: MM 232 must be completed before any 4th semester civil engineering course can be taken.

***Note: GC 340 must be completed satisfactorily before these courses may be taken.

****Note: GC 320 and GC 340 must be completed satisfactorily before this course may be taken.

Computer Maintenance Technology

The Computer Maintenance Technology program is designed to provide the student with the necessary electronics background and the computer "know-how" to deal with the ever-changing computer technology. This program will equip the student with well beyond the entry-level skills required to enter the computer industry. Typical positions for graduates range from computer maintenance service technicians to engineering research technicians.

The program gives the student a theoretical background in basic electronics, digital circuitry, and programming. "Hands-on" laboratory work with computer equipment allows the students to apply what they have learned in class. The department's resources include 48 Aim-65 eight-bit computers, 17 Motorola 68000 sixteen-bit computers, a DEC PDP-11, two Data General Nova minicomputers, and circuit labs that have been outfitted with modern test equipment. The College also has a large number of IBM PC's and an academic computer for student use.

Minimum Grade Requirements: Students in Computer Maintenance Technology must receive a grade of "D" or better. A Q.P.A. of 2.0 must be achieved for graduation. Upon the successful completion of requirements for this program, as listed below, the degree of **Associate in Science in Computer Maintenance Technology** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
EP 101	Intro. to Technology	2		1
ET 110	Basic Electronics 1	3		3
ET 115	Electronics Lab 1		4	2
ET 120	Graphics & CAD for Electronics	1	2	2
MM 132	Technical Math 1	4		4
	Elective: Social Science	3		3
		16	6	18

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
ET 210	Basic Electronics 2	3		3
ET 215	Electronics Lab 2		4	2
ET 220	Active Networks 1	3		3
ED 240	Intro. to Computer Organization & Prog.	2		2
MM 232	Technical Math 2	4		4
		15	4	17

SEMESTER 3

LE 202	Tech. Report Writing	3		3
ET 310	Active Networks 2	3		3
ET 340	Computer Architecture & Logic Circuitry	3		3
ED 330	Machine & Assembly Language Programming	3		3
ED 350	Dig. Electric. Lab 1		4	2
EP 320	Data Communications	3		3
		15	4	17

SEMESTER 4

ED 420	Microprocessor Theory	3		3
ED 450	Adv. Computer Topics	3		3
ED 410	Adv. Digital Elec. Lab		4	2
ET 430	Digital Comp. Systems	3		3
ET 440	Integrated Electronics	3		3
MP 119	Technical Physics	3	3	4
		15	7	18

*MM 132 and MM 232 must be completed and passed by the start of September (3) third semester.

Drafting Technology

This one-year certificate program is designed to train students for careers in the broad field of drafting. In industry, draftsmen translate the ideas, sketches, and specifications of engineers into workable plans. Graduates of this program will find employment as detailers, draftsmen, and design draftsmen.

Students in this program have the option of continuing their education one more year and obtaining the Associate in Science degree in Drafting and Design Technology.

Upon the completion of the requirements for the program, a Springfield Technical Community College **Certificate in Drafting Technology** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
FB 110	Production Processes	3		3
BZ 100	Keyboard Skills	1		1
MM 132	Technical Math 1	4		4
FD 110	Drafting & Design 1	2	6	4
	Elective: Social Science	3		3
		16	6	18

SEMESTER 2

GD 260	Graphic Design Lab	1	3	2
LE 202	Tech. Report Writing	3		3
FB 230	Intro to CAD	2	4	3
FD 210	Drafting & Design 2	2	6	4
FD 220	Mechanics	4		4
		12	13	16

Electrical Technology

The Electrical Technology program prepares students for work in the development, installation and maintenance of industrial automated systems. Graduates of the program have also been successful as field representatives for manufacturers in the areas of product application and sales. Students planning to enter this field should have a desire for achievement and involvement in mathematics, science and technology.

Minimum Grade Requirements: All "EE" and "ET" series Electrical Technology courses must be successfully completed with a grade of "D" or better for graduation. These Electrical Technology courses must be taken in a sequential order. That is, second semester courses cannot be taken until the first semester prerequisite courses are successfully completed as outlined in the Electrical Technology program. Before starting the third semester, the student must have successfully completed the Mathematics Modules MM 105-109. Upon the successful completion of requirements for this program, as listed below, the degree of **Associate in Science in Electrical Technology** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
EE 110	Basic Electricity 1	2	3	3
EE 120	Engineering Graphics 311	1	2	2
EE 140	Programming for Microcomputers	3		3
MM 132	Technical Math 1	4		4
	Elective: So.Sci./Humanities	3		3
		16	5	18

SEMESTER 2

LE 200	English Comp. 2: Intro. to Lit.	3		3
LE 203	Fundamentals of Speech	3		3
EE 210	Basic Electricity 2	2	3	3
MM 232	Technical Math 2	4		4
EE 240	Fundamentals of Motor Control	1	2	2
EE 330	Semiconductors/Transistors 1	2	3	3
		15	8	18

SEMESTER 3

EE 320	Ind. Electronic Circuits 1	2	3	3
EE 350	Programmable Motor Control	2	3	3
EE 430	Semiconductors/Transistors 2	2	3	3
EB 350	Digital Electronics	3		3
LE 202	Technical Report Writing	3		3
		12	9	15

SEMESTER 4

ED 420	Microprocessor Theory	3		3
EE 410	Ind. Electronic Circuits 2	2	3	3
EE 440	Electro-Mech Circuit Design	2	2	2
EE 450	Oper. Amplifier Circuits	2	3	3
EE 470	Control System Theory	3		3
	Elective: Humanities/Soc. Sci.	3		3
		15	8	17

ROBOTICS TECHNOLOGY (OPTION TO ELECTRICAL TECHNOLOGY)

The Electrical Technology Robotics Option is designed to prepare students for the opportunities existing within the new robotic and automation fields emerging in industry and business.

The field of robotics is concerned with automated machines controlled electrically by involving the coordinated use of hydraulic, electrical, pneumatic, and microcomputer elements. An investment in robotics presents many advantages to enterprises, including lower production costs and a quality of work not attainable by a human operator. With this in mind, the need for skilled technicians to install, maintain, and service robotic equipment will be ever increasing.

Minimum Grade Requirements: All "EE" and "ET" series Electrical Technology courses must be successfully completed with a grade of "D" or better to graduate. These courses must be taken in sequential order. That is, second semester courses cannot be taken until the first semester prerequisite courses are successfully completed, as outlined in the Electrical Technology program. Before starting the third semester, the student must have successfully completed MM 232, Technical Math 2. Upon the successful completion of requirements for this program as listed below, the degree of **Associate in Science in Electrical Technology** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
EE 110	Basic Electricity 1	2	3	3
EE 120	Engineering Graphics	1	2	2
LE 100	English Composition 1	3		3
MM 132	Technical Math 1	4		4
EE 140	Programming for Microcomputers	3		3
	Elective: Soc.Sci./Humanities	3		3
		16	5	18

SEMESTER 2

EE 210	Basic Electricity 2	2	3	3
EE 240	Fund. of Motor Controls	1	2	2
EE 330	Semiconductors/Transistors 1	2	3	3
LE 203	Fundamentals of Speech	3		3
MM 232	Technical Math 2	4		4
LE 200	English Comp. 2: Intro. to Lit.	3		3
		15	8	18

SEMESTER 3

EB 350	Digital Electronics	3		3
EE 320	Industrial Electronic Circuits 1	2	3	3
EE 340	Robotics 1	2	3	3
EE 430	Semiconductor/Transistors 2	2	3	3
IT 320	Hydraulics and Pneumatics	3		3
LE 202	Technical Report Writing	3		3
		15	9	18

SEMESTER 4

ED 240	Microprocessor Theory	3		3
EE 410	Industrial Electronic Circuits 2	2	3	3
EE 440	Solid State Circuit Design	1	2	2
EE 450	Operational Amplifier Circuits	2	3	3
EE 480	Robotics 2	2	3	3
	Elective: Humanities/Soc. Sci.	3		3
		13	11	17

Electronic Technology

The Electronic Technology program is organized to present learning activities that will qualify the graduate to perform job functions in areas such as communications, control systems, computers, circuit design and systems testing. Training for a wide range of jobs is provided by a two-year technical program of specialized, intensive instruction designed to fit individuals for useful employment as highly skilled technicians in the electronics field.

Minimum Grade Requirement: Students in Electronics Technology must receive a grade of "D" or better. A Q.P.A. of 2.0 must be achieved for graduation. Upon the successful completion of the requirements for this program, as listed below, the degree of **Associate in Science in Electronic Technology** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
ET 115	Electronics Lab 1		4	2
ET 110	Basic Electronics 1	3		3
ET 120	Graphics & CAD for Electronics	1	2	2
EP 101	Intro. to Technology	2		1
MM 132	Technical Math 1	4		4
	Elective: Social Science	3		3
		16	6	18

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
ET 210	Basic Electronics 2	3		3
ET 215	Electronics Lab 2		4	2
ET 220	Active Networks 1	3		3
ED 240	Intr. to Comp. Organ. & Programming	2		2
MM 232	Technical Math 2	4		4
		15	4	17

SEMESTER 3

LE 202	Tech. Report Writing	3		3
ET 310	Active Networks 2	3		3
ET 320	Comm. Systems 1	3		3
ET 330	Fund. of Pulse & Timing Cir.	3		3
ET 340	Comp. Archt. & Logic Cir.	3		3
ET 350	Electronics Lab 3		4	2
		15	4	17

SEMESTER 4

ET 420	Comm. Systems 2	3		3
ET 430	Digital Computer Systems	3		3
ET 440	Integrated Electronics	3		3
ET 450	Electronics Lab 4		4	2
ED 420	Microprocessor Theory	3		3
MP 120	Technical Physics For Electronics	3	3	4
		15	7	18

MM 132 and MM 232 must be completed & passed by the start of Semester 3.

MICROPROCESSING TECHNOLOGY (OPTION TO ELECTRONIC TECHNOLOGY)

The Microprocessing Technology program is designed to provide the student with the necessary electronics background and microcomputer "know-how" to deal with ever increasing use of microprocessors in every phase of human endeavor. The program will equip the students with the necessary skills to become enrolled in one of the more rapidly growing technical fields in America today. The trained technician can expect favorable job opportunities, promotional potential and rapid advancement as a result of being in step with the job demands of society.

The students will learn both the traditional background of Analog and Digital circuits and systems and will also have specific training in the areas of architecture, interfacing, and data communications networks. These students would be able to deal with the special problems confronting design and implementation of microprocessor-based system.

"Hands-on" laboratory work with computer equipment allows the students to apply what they have learned in class. The department has an open lab policy that gives the students flexible or extended lab times. The department's resources include 48 Aim-65 eight-bit computers, 17 Motorola 68000 sixteen-bit computers, a DEC PDP-11, two Data General Nova minicomputers, and circuit labs that have been outfitted with modern test equipment. The College also has a large number of IBM PC's and an academic computer for student use.

Minimum Grade Requirements: Students in Microprocessing Technology Option must receive a grade of "D" or better for graduation. Upon successful completion of requirements for this program, as listed below, the degree of **Associate in Science in Electronic Technology** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
EP 101	Intro. to Technology	2		1
ET 110	Basic Electronics 1	3		3
ET 115	Electronics Lab. 1		4	2
ET 120	Graphics & CAD for Electronics	1	2	2
MM 132	Technical Math 1	4		4
	Elective: Social Science	3		3
		16	6	18

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
ED 240	Intro. to Computer Organ. & Programming	2	2	2
ET 210	Basic Electronics 2	3		3
ET 215	Electronics Lab. 2		4	2
ET 220	Active Networks 1	3		3
MM 232	Technical Math 2	4		4
		15	6	17

SEMESTER 3

LE 202	Tech. Report Writing	3		3
ED 330	Machine & Assembly Language Programming	3		3
ED 350	Digital Electronic Lab		4	2
ET 310	Active Networks 2	3		3
EP 310	Microcomputer Architec. & Logic Systems	3		3
EP 320	Data Communications	3		3
		15	4	17

SEMESTER 4

ED 420	Microprocessor Theory	3		3
EP 410	Microcomputer Lab		4	2
EP 420	Adv. Microcomp. Topics	3		3
EP 430	Microcomp. Interfacing	3		3
ET 440	Integrated Electronics	3		3
MP 120	Technical Physics For Electronics	3	3	4
		15	7	18

Environmental Technology

The Department of Environmental Technology offers courses to prepare students for work in water pollution control, water treatment, air pollution monitoring, hazardous waste, and industrial hygiene. The program is oriented toward environmental control, with the objective of training technicians who can operate water treatment and wastewater treatment facilities, monitor air and water quality, and clean up contaminated groundwater. The graduates will find work in municipal and industrial water pollution control or drinking water facilities, hazardous waste control firms, groundwater hydrology firms, environmental laboratories, environmental regulatory agencies, and consulting firms.

The program is career-oriented, and full credit generally will not be transferable to a four-year college. It is desirable to have one year of chemistry and one year of algebra prior to entering the program. Those students without this background can expect to take more than two years to complete the program. The students will be trained in both theory and its application, and will receive hands-on laboratory and field experience on pollution control equipment.

Minimum Grade Requirement: The minimum passing grade for any individual course in the Environmental Technology Department shall be a "D" (60). The minimum average for graduation from the department is a "C". Upon the successful completion of requirements for this program, as listed below, the degree of **Associate in Science in Environmental Technology** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
MM 101-103	Mathematics	3		3
MC 101	General Chemistry 101	3	3	4
HE 110	Environmental Studies	3		3
HE 120	Process Problems 1	3	2	4
		15	5	17

SEMESTER 2

LE 202	Technical Report Writing	3		3
MB 121	Envir. Microbiology	3	2	4
MC 201	General Chemistry 102	3	3	4
HE 210	Municipal Wastewater Plant Operations 1	3		3
HE 220	Basic Instrumentation	3		3
		15	5	17

SUMMER 1

HE 230	Practicum (Summer)			3

SEMESTER 3

NE 100	Economics 1	3		3
NP 109	Human Relations at Work	3		3
HE 310	Water Treatment Plant Operations	2	3	3
HE 320	Ind. Health & Safety	3		3
HE 330	Municipal Wastewater Plant Operations 2	2	3	3
		13	6	15

SEMESTER 4

HE 410	Industrial Wastewater	2	3	3
HE 420	Systems Maintenance	3		3
HE 430	Air Sample Analysis & Control Process	2	3	3
HE 440	Hazardous Materials and Waste Management	3		3
	Elective: Social Science	3		3
		13	6	15

Graphic Arts Technology

The Graphic Arts Department offers a curriculum designed to prepare students for the many and varied careers available in the commercial printing and advertising business. The courses are devoted to functional discussions crossing most branches of the printing industry. It is the objective of the department to relate the many branches of the industry to each other and to the totality of contemporary printing. Rochester Institute of Technology, as well as other institutions offering Graphic Arts specialty courses, have indicated that they will accept credits from this program toward an advanced degree in Printing and Publishing.

The program offers three options wherein the student may concentrate in the three major areas within the printing industry. Options in Printing Management, Commercial Art, or Printing Technology allow the student to specialize in that area where his or her talents are most satisfied. A certificate program is also offered in all three options.

Upon the successful completion of requirements for this program, as listed below, the degree of **Associate in Science in Graphic Arts Technology** will be awarded.

Minimum Grade Requirement: The minimum passing grade for any individual course in this program shall be a "D" (60%). The minimum average for graduation from the program is a "C" (73%).

CORE CURRICULUM FOR ALL OPTIONS

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
NP 100	General Psychology	3		3
GA 110	Line Photography	2	3	3
GA 120	Typography & Copy Prep.	2	3	3
GA 130	Intro to Printing	1		1
BZ 100	Basic Keyboarding	1		1
	Elective: Soc. Sci./Humanities	3		3
		15	6	17

PRINTING MANAGEMENT OPTION

This option combines the basic Graphic Arts technical aspects with basic managerial skills, providing the student with the expertise for entry-level placement in middle management positions in the commercial or in-plant printing industry.

SEMESTER 2

BD 195	Computer Concepts/Technical	1	2	3
BP 101	Office Accounting 1	3		3
GA 210	Basic Lithographic Image Assembly	2	3	3
LE 202	Technical Report Writing	3		3
MM 120	Contemporary Math 1*	3		3
		12	5	15

SEMESTER 3

BI 311	Advertising and Promotion	3		3
BK 112	Managerial Supervision	3		3
	Professional Elective	2	3	3
	Soc.Sci./Humanities Elective	3		3
GA 370	Printing Management	3		3
GA 380	Chemistry of Lithography 1	3		3
		17	3	18

SEMESTER 4

BK 421	Small Business Formation	3		3
	Professional Elective	3		3
GA 410	Chemistry of Lithography 2	3	3	4
GA 480	Printing Production Management	3		3
GA 490	Printing Estimating	3		3
		15	3	16

* Higher level math acceptable (recommended for mangement option)

Electives Semester 3: Select one:

GA 310 Halftone Photography
GA 320 Advanced Color Litho. Image Assembly
GA 360 Offset Presswork

Electives Semester 4: Select one:

GA 470 Offset Presswork 2
GA 420 Halftone/Color Photography
GA 530 Screen Printing

GA 397 and GA 497, Cooperative Education: recommended as additional courses, but not certified as a substitution for any of the above.

COMMERCIAL ART OPTION

This option prepares the student for copy preparation departments of commercial printing or entry level into advertising agencies and commercial art studios. Developed proficiency in typography, typesetting, layout, design, and mechanical preparation provide the basic skills required for this exciting and demanding career.

SEMESTER 2

GA 210	Basic Lithographic Image Assemb.	2	3	3
GA 220	Layout and Copy Prep.	2	3	3
LA 147	Basic Drawing	3		3
LE 202	Technical Report Writing	3		3
MM 120	Contemporary Math*	3		3
		13	6	15

SEMESTER 3

BI 311	Advertising and Promotions	3		3
	Professional Elective	2	3	3
GA 350	Graphic Design (Elective)	2	3	3
GA 510	Media Techniques	3		3
LA 146	Basic Design Intro to Art	3		3
		13	6	15

SEMESTER 4

BD 195	Computer Concepts/Technical	1	2	3
	Professional Elective	2	3	3
GA 460	Graphic Design/Pub and Pack	2	3	3
GA 530	Screen Printing	2	3	3
LA 149	Drawing Composition	3		3
		10	11	15

* Higher level math acceptable (recommended for transfer)

Electives Semester 3: Select one:

GA 310	Halftone Photography
GA 320	Advanced Color Litho. Image Assembly
GA 360	Offset Presswork 1
GA 370	Printing Management
GA 380	Chemistry of Lithography 1
BK 421	Small Business Formation

Electives Semester 4: Select one:

GA 480	Printing Production Management
GA 490	Printing Estimating
GA 440	Personnel Mgt. GA Industry
LA 142	Printing 1
BP 101	Office Accounting 1
GA 410	Chemistry of Lithography 2
GA 470	Offset Presswork 2
GA 420	Halftone/Color Photo.

GA 398 and GA 497, Cooperative Education: Recommended as additional courses, but not certified as a substitution for any of the above.

PRINTING TECHNOLOGY OPTION

This option, often pursuing concentrated study into the technical aspects of the industry, prepares the student for entry into the commercial printing field as a technician in one of the many areas requiring a high degree of proficiency in copy preparation, stripping, and reproduction.

SEMESTER 2

BD 195	Computer Concepts/Technical	1	2	3
GA 210	Basic Litho. Image Assembly	2	3	3
GA 220	Layout and Copy Preparation	2	3	3
LE 202	Technical Report Writing	3		3
MM 120	Contemporary Math 1*	3		3
		11	8	15

SEMESTER 3

	Elective: Soc.Sci/Humanities	3		3
GA 310	Halftone Photography	2	3	3
GA 320	Advanced Color Litho. Image Assembly	2	3	3
GA 360	Offset Presswork 1	2	3	3
GA 370	Printing Management	3		3
GA 380	Chemistry of Lithography 1	3		3
		15	9	18

SEMESTER 4

	Professional Elective	3		3
GA 410	Chemistry of Lithography 2	3	3	4
GA 420	Color Reproduction Processes	2	3	3
GA 470	Offset Presswork 2	2	3	3
GA 530	Screen Printing	2	3	3
		12	12	16

* Higher level math acceptable (recommended for transfer)

Electives Semester 4: Select one:

GA 480 Printing Production Management
GA 490 Printing Estimating
GA 440 Personnel Mgt. in GA Industry
BK 421 Small Business Formation

GA 398 & GA 497, Cooperative Education: Recommended as additional courses but not certified as a substitution for any of the above.

GA 397 and GA 497, G. A. Co-op will be allowed as a professional elective if an appropriate work experience of a minimum 12 hours per week is available to the student and is approved by the G. A. Co-op advisor.

Heat/Power/Air Conditioning Technology

The Heat/Power/Air Conditioning Program is unique in the sense that it is the only such program offered on the East Coast. An up-to-date, extensive laboratory facility has been created which utilizes the latest in equipment and control devices. Seniors who complete all course requirements are awarded the Associate in Science degree. They are given the opportunity to earn additional awards by taking the "Certificate of Competency" and "Stationary Fireman's" examinations as directed by the Massachusetts Department of Public Safety. The Heat/Power/Air Conditioning graduate is well prepared to enter an industry that offers career positions as manufacturers' representatives, service engineers, sales engineers, estimators, independent businessmen, lab technicians, and power plant operators.

Minimum Grade Requirement: Students must achieve a "D" as the minimum passing grade in all HP series technical courses. A student must have earned a minimum .P.A. of 2.0 for graduation. Upon the successful completion of requirements for this program, as listed below, the degree of **Associate in Science in Heat/Power/Air Conditioning Technology** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
MM 132	Technical Math 1	4		4
NP 109	Human Relations at Work	3		3
HP 130	Engr. Graphic 331		3	1
HP 110	Theory of Controls	3		3
HP 120	Mech. Skills/Proced. 1	1	3	2
		14	6	16

SEMESTER 2

LE 203	Fundamentals of Speech	3		3
HP 210	Hydronic Layouts & Const.		3	1
HP 220	Combustion Control Cir.	3		3
HP 230	Mech. Skills & Proc. 2	1	3	2
HP 330	Power Plant Operation 1	3	2	3
HE 220	Instrumentation	3		3
		13	8	15

SEMESTER 3

MC 100	Chemistry	3	3	4
HP 240	Principles of Refrigeration	2	2	3
HP 310	Comm. Progr. Controls	2	4	4
HP 320	Heating Syst. Design	3		3
HP 430	Power Plant Operation 2	2	2	3
		12	11	17

SEMESTER 4

LE 202	Tech. Report Writing	3		3
HP 340	Fund. of Air Conditioning	2	2	3
HP 410	Adv. Heat. Syst. Design	3		3
HP 420	Ind. Control Applic.	2	4	4
HP 450	Power Station Engineering	2	2	3
		12	8	16

Landscape/Plant Science Technology

Students enrolled in this program will receive a broad base in the development and maintenance of land areas. Topics ranging from plant identification and use, tree and landscape maintenance, to landscape design and construction are included as part of the curriculum. The importance of qualified field personnel is stressed throughout the program. Students will be given an appreciation and understanding of the effects that can be created by well-planned landscape design and maintenance. Graduates may be employed by nurseries, landscape contractors, private and public parks and by business firms as grounds maintenance specialists. With the rapid development of more complex and varied materials and equipment for use in this field, there is an increasing need for properly trained personnel to fill responsible positions both in field work and in planning and management.

Minimum Grade Requirement: All Landscape Technology courses shall be completed with a grade of "D" (63% or 1.0) or above. Any course failed must be repeated before graduation and each course may be repeated only once. The student must also have achieved a 2.0 Q.P.A. and shall have remained in good academic standing as outlined below:

A) At the beginning of the second semester, the student must maintain a 1.5 Q.P.A.

B) At the beginning of the third semester, the student must maintain a 1.7 Q.P.A.

C) At the beginning of the fourth semester, the student must maintain a 1.9 Q.P.A.

A student not meeting the above academic standards will be placed on academic probation for one semester. If, at the end of this period, no improvement has taken place, the student will be removed from the program. Upon the successful completion of requirements for this program, as listed below, the degree of **Associate in Science in Landscape Technology** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
MM 120	Contemporary Math 1	3		3
GL 110	Trees in Landscape	1	4	3
GL 120	Prin. of Horticulture	2	3	3
	Elective: Social Science	3		3
		12	7	15

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
GL 210	Presentation Techniques		6	3
MB 108	General Botany	3	3	4
GL 220	Turf Management	2	3	3
	Elective: Social Science	3		3
		11	12	16

SEMESTER 3

GL 310	Shrubs in the Landscape	1	4	3
GL 320	Arboriculture	2	3	3
GL 330	Landscape Design 1	1	4	3
GC 305	Surveying 721	2	3	3
GL 350	Landscape Oper. (Plant)	2	3	3
LE 203	Fundamentals of Speech	3		3
		11	17	18

SEMESTER 4

GL 410	Plant Propagation	2	3	3
GL 420	Landscape Design 2	1	4	3
GL 430	Earth Forms & Struct.	2	3	3
BK 421	Small Business Formation	3		3
GL 450	Entomology/Disease Control	2	3	3
		10	13	15

Laser Electro-Optics Technology

Laser Electro-Optics Technology is one of the more rapidly growing technical fields in America today. The trained technician can expect favorable job opportunities, promotion potential and rapid advancement. STCC's program is designed to expose the student to four major areas: Laser Systems, Electronics, Optics and Electro-Optics. The student will learn about the laser both as an instrument and as an integral part of a system designed for industrial, medical and scientific application. The electronics used in generating and controlling the laser will be taught. The use of the laser in electronics production, testing, maintenance, research and development, is part of the curriculum. In the field of optics, the student will acquire a good working knowledge of light, geometrical and physical optics, optical components and optical systems. Finally, the student will devote a large

portion of his time to incorporating optical and laser skills and knowledge into developing Electro-Optical Techniques and Systems.

Minimum Grade Requirement: students must receive a grade of "D" or better. A Q.P.A. of 2.0 must be achieved for graduation.

Upon the successful completion of requirements for this program, as listed below, the **Associate in Science Degree in Laser Electro-Optics Technology** will be awarded.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
ET 110	Basic Electronics 1	3		3
ET 115	Electronics Lab 1		4	2
ET 120	Graphics and CAD for Electronics	1	2	2
EP 101	Intro. to Technology	2		1
MM 132	Technical Math 1**	4		4
	Elective: Social Science	3		3
		16	6	18

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
ET 210	Basic Electronics 2	3		3
ET 215	Electronics Lab 2		4	2
ET 220	Active Networks 1	3		3
ED 240	Intro. to Comp. Organ. and Programming	2		2
MM 232	Technical Math 2**	4		4
		15	4	17

SEMESTER 3

LE 202	Technical Report Writing	3		3
EL 320	Introduction to Lasers	3	3	4
EL 330	Geometrical Optics	3	3	4
ET 310	Active Networks 2	3		3
ET 340	Comp. Arch. & Logic Syst.	3		3
		15	6	17

SEMESTER 4

EL 410	Laser Projects	3	3	4
EL 420	Wave Optics	3	3	4
EL 430	Laser Elec.-Optic Comp.	3		3
ET 440	Integrated Electronics	3		3
MP 120	Technical Physics For Electronics	3	3	4
		15	9	18

**NOTE: All Math courses from MM 132 through MM 232 must be completed and passed by start of Semester Three (3).

Mechanical Technology

Mechanical Technology is concerned with the design, improvement, and installation of an integrated system of people, materials, and equipment. This includes the latest concepts and techniques of CAD/CAM. It draws upon specialized knowledge and skills in the mathematics and physical science areas. The programs involve the principles and methods of engineering analysis and design in the manufacturing environment of tools, and the processes and materials with which they will be made. Courses are designed to produce a versatile engineering technician capable of growth within the industry or to allow for further continued studies.

The Mechanical Technology program offers three options in the following areas: Industrial Engineering, Drafting and Design, and Metal Machining Technology.

Upon the successful completion of the requirements for the program options as described below, the degree of **Associate in Science in Mechanical Technology** will be awarded.

INDUSTRIAL ENGINEERING TECHNOLOGY (OPTION TO MECHANICAL TECHNOLOGY)

This program is designed to prepare the student to enter the world of manufacturing by focusing on the service industries and the area of product sales. CAM (Computer-Aided Manufacturing) technology and principles are stressed throughout the course of study.

The manufacturing product areas include metal shaping, fabrication, and assembly, while the service area includes but is not limited to, contract engineering, warehousing, and health care facilities. The program includes process planning, plant layout, work simplification, statistical process control and reliability, technical sales, cost analysis and purchasing, and production and inventory control, along with production management.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
FA 110	Metal Machining 1	2	9	5
FB 110	Production Processes	3		3
FB 130	Blue Print Reading	1	3	2
LE 100	English Composition 1	3		3
MM 132	Technical Math 1	4		4
BZ 100	Basic Keyboarding	1		1
		14	12	18

SEMESTER 2

FA 320	Work Simplification	3	2	4
LE 202	Technical Report Writing	3		3
FB 230	Intro to CAD	2	4	3
FB 310	Industrial Materials	3		3
	Elective: Social Science	3		3
		14	6	16

SEMESTER 3

FA 335	CAM 1	2	4	4
FB 320	Strength of Materials	4		4
FB 325	CAM Software Operations	3	3	4
FB 340	Mfg. Planning & Control 1	3	3	4
FB 430	Engineering Economy	3		3
		15	10	19

SEMESTER 4

FB 460	Manufacturing Lab	2	3	3
FB 425	Statistical Process Control	3	3	4
FB 450	Operations Management	3		3
MP 119	Technical Physics	3	3	4
	Elective: Soc. Sci. or Humanities	3		3
		14	9	17

DRAFTING AND DESIGN TECHNOLOGY (OPTION TO MECHANICAL TECHNOLOGY)

This program prepares the student to take on positions such as CAD (Computer-Aided Drafting) board draftsmen and engineering technicians in the mechanical environment. The program develops the necessary background in mathematics, engineering graphics, physics, strength of materials, engineering analysis, and CAD. Project work and analysis is a final course given to the student, so as to determine possible potential, and to give the students the opportunity to use their own initiative and creativity in the world of manufacturing.

A background in high school algebra, physics, and mechanical drawing is required.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
BZ 100	Basic Keyboarding	1		1
FD 110	Drafting and Design 1	2	6	4
FB 110	Production Processes	3		3
LE 100	English Composition 1	3		3
MM 132	Technical Math 1	4		4
	Elective: Social Science/Humanities	3		3
		16	6	18

SEMESTER 2

FB 230	Intro to CAD	2	4	3
FD 210	Drafting and Design 2	2	6	4
FD 220	Mechanics	4		4
LE 202	Technical Report Writing	3		3
	Elective: Social Science/Humanities	3		3
		14	10	17

SEMESTER 3

FB 320	Strength of Materials	4		4
FB 335	CAD 1	2	4	3
FD 310	Drafting and Design 3	2	6	4
MP 119	Technical Physics	3	3	4
		11	13	15

SEMESTER 4

FB 435	CAD 2	2	4	3
FD 320	Design of Machine Elements	4		4
FD 410	Drafting and Design 4	2	6	4
FD 450	Project Design Lab	1	3	2
	Elective: Soc. Sci. or Humanities	3		3
		12	13	16

METAL MACHINING TECHNOLOGY (OPTION TO MECHANICAL TECHNOLOGY)

This program is designed to prepare the student to enter the world of manufacturing by offering the necessary courses in both general purpose machining and computer numerical control (CNC) equipment. Also offered are courses related to manufacturing engineering such as work simplification, quality control, production control, and cost analysis. The course materials will prepare the students to qualify as machine operators, CNC programmers, manufacturing technicians and other related positions in quality, production, and process control.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
FA 110	Metal Machining 1	2	9	5
FB 110	Production Processes	3		3
FB 130	Blue Print Reading	1	3	2
LE 100	English Composition 1	3		3
BZ 100	Basic Keyboarding	1		1
MM 132	Technical Math 1	4		4
		14	12	18

SEMESTER 2				
FA 210	Metal Machining 2	2	9	5
FA 320	Work Simplification	3	2	4
LE 202	Technical Report Writing	3		3
	Elective: Social Science	3		3
FB 235	Intro to Computerized Numerical Control	3		3
		14	11	18
SEMESTER 3				
FA 335	CAM 1	2	4	4
FB 320	Strength of Materials	4		4
FB 330	Quality Control	4		4
FB 340	Mfg. Planning & Control 1	3	3	4
		13	7	16
SEMESTER 4				
FA 435	CAM 2	2	4	4
FB 420	Fluid Power	3		3
FB 430	Engineering Economy	3		3
MP 119	Technical Physics	3	3	4
	Elective: Soc. Sci. or Humanities	3		3
		14	10	18

Telecommunications Technology

This program is designed to provide students with an excellent opportunity to pursue a viable career in mass media communications. Graduates of this program will qualify for production, programming, or managerial positions in local television stations and cable television stations, and in industry, education, and medicine where television is utilized.

Minimum Grade Requirement: The minimum grade for major courses in the Telecommunications Technology program is "C." All students must maintain a "C" plus average in order to be awarded a degree in Production Technician. Upon the successful completion of requirements for this program, as listed below, the degree of **Associate in Science in Telecommunications Technology** will be awarded. These credits are exclusive of the TV Honors courses.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
GT 111	Fund. in TV Writing	4		4
GT 120	Video Techniques	2	3	3
GT 130	Video Production	2	3	3
GT 140	Commun. in Today's World	3		3
		14	6	16

SEMESTER 2

GT 210	Advanced TV Writing	3		3
NP 100	General Psychology	3		3
GT 220	TV Prod. & Directing	2	3	3
GT 230	Speaking on TV	3		3
GT 240	Anal. of Comm. & Public TV	3		3
LE 203	Fundamentals of Speech	3		3
		17	3	18

SEMESTER 3

NE 100	Economics 1 or Soc. Sci. Elective	3		3
GT 310	Instructional TV Tech.	2	3	3
GT 321	TV Journalism	1	3	2
GT 331	TV Production Practicum		6	2
NS 100	Introduction to Sociology	3		3
	Elective: Math/Science	3		3
		12	12	16

SEMESTER 4

GT 410	Instructional TV Prod.	3	2	4
GT 421	Advanced TV Journalism		6	2
GT 431	Adv. TV Production Prac.		6	2
GT 440	Cable Television	3		3
NH 210	Modern U.S. History	3		3
	Elective: Social Science/ Humanities	3		3
		12	14	17

Engineering and Science Transfer

Engineering Transfer Option

The Engineering and Science Transfer Program was established in 1968 to provide a parallel program to the first two years of a four-year university program in science, engineering, or engineering technology. It does so by awarding Associate in Science degrees in nine areas. If a student is not ready to take university-type courses, he or she can take advantage of the Pre-Engineering option.

The hard work of the faculty and students has paid off with the program being recognized as a Center for Excellence in Engineering Transfer, as well as being made a part of the Dual Admission program with the University of Massachusetts. The Engineering and Science Transfer program at STCC also has 2+2 agreements with WNEC and Russell Sage, as well as articulation agreements with Southeastern Massachusetts University, Westfield State College, Boston University, and the University of Hartford. RPI has chosen to award one of its annual 20 national medallions to one of the outstanding students from STCC's Engineering and Science Transfer Department.

STCC is one of the leaders in incorporating the computer into the everyday curriculum. This commitment means that there are more than 120 PC's on campus available for student use, as well as a DEC 11/1785 with 50 terminals for academic use. There are 13 AT's devoted to CAD, and 10 more devoted to CAD/CAM. The Engineering and Science Transfer program has its own computer lab of PC's and 10 CAD-oriented workstations. The program's electronic labs have research-grade workstations, and its material science lab is up to date.

SAT scores are required of all successful applicants. All applications are personally reviewed by our engineering faculty, and the successful applicant is given a recommended list of courses.

Minimum Grade Requirements: A full-time student in any of the curriculum options of the Engineering & Science Transfer Department must complete at least 75% of the mathematics, science, and technical (ME series) courses that are prescribed by his/her curriculum for the given semester in which the student is enrolled. A student not meeting these requirements will be dropped from the program. Reinstatement will be permitted only after the student, either through another college or through STCC's Division of Continuing Education, has completed all of the required courses dictated by the student's curriculum at the time of the dismissal.

A student enrolled in the Pre-engineering Option of General Studies must have a cumulative B- average in the mathematics and science courses. A student who has not achieved this average will not be allowed to transfer into the Engineering and Science Transfer Department.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
MC 103	General Chemistry 21	3	3	4
ME 103	Intro. to Engineering	2	3	3
GD 110	Prog. Engr. Graphics		3	1
MM 155	Calculus 1	6		4
	Elective: Social Science	3		3
		17	9	18

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
MP 132	University Physics 1	3	3	4
MC 203	General Chemistry 22	3	3	4
MM 255	Calculus 2	6		4
ME 206 MK 203	Problem Solving Using Fortran 77 (or) Non-Numerical Processing - Pascal	3	3	4
		18	9	19

SEMESTER 3

MP 232	University Physics 2	3	3	4
	Elective: Math, Science, or Engineering	3		3
	Elective: Engineering	3		3
MM 355	Calculus 3	6		4
	Elective: Social Science or Humanities	3		3
		18	3	17

SEMESTER 4

	Elective: Engineering	3		3
	Elective: Engineering	3		3
	Elective: Math, Science, or Engineering	3		3
MM 455	Differential Equations	6		4
	Elective: Social Science or Humanities	3		3
		18		16

By choosing the appropriate Technical & General Electives in the 3rd and 4th semesters, a student can major in Chemical, Civil, Electrical, Environmental, Industrial or Mechanical Engineering.

Upon the successful completion of requirements for this program, as listed above, the degree of **Associate in Science in Engineering and Science Transfer** will be awarded.

Computer Science Transfer Option

The first digital computer was demonstrated in 1944; today there are hundreds of thousands of such computers in use throughout the world. A majority of all available jobs will involve some use or interaction with computers. This widespread use of computers will be supported by increasing numbers of computer terminals and personal microcomputers in stores, banks, schools, libraries, and homes. In spite of the tremendous hardware (electronic) aspect of computers, computers owe their power to people. People create application systems; they design, sell, manage, and program computer systems.

The creation and utilization of the best possible hardware and software to solve problems is, broadly speaking, the field of computer science. Computer science emphasizes the use of computers to solve problems in mathematics, statistics, information management, and engineering.

The Computer Science Transfer curriculum prepares students for the more advanced undergraduate work expected by four-year universities offering computer science bachelor's degrees. After obtaining the bachelor's degree, students will expect to find careers in scientific and engineering applications programming, systems programming and analysis, or management, or may continue in graduate study in computer science. Career opportunities in all areas of computer science specialization are excellent for both men and women.

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
MC 103	General Chemistry 21	3	3	4
MK 103	Intro. to Computer Programming	3	3	4
MM 155	Calculus 1	6		4
	Elective: Social Science	3		3
		18	6	18

SEMESTER 2

LE 200	Composition 2: Intro. to Lit.	3		3
MC 203	General Chemistry 22	3	3	4
MK 203	Non-Numerical Processing	3	3	4
MM 255	Calculus 2	6		4
	Elective: Humanities or Soc. Science	3		3
		18	6	18

SEMESTER 3

MK 320	Computer Organization & Digital Logic	3		3
MK 401	Data Structures & Algorithms	3	3	4
MK 310	Machine & Assembly Language	3	3	3
MM 375	Discrete Mathematical Structures 1	3		3
	Elective: Humanities or Soc. Science	3		3
		15	6	17

SEMESTER 4

MM 345	Statistical Analysis	4		4
MM 475	Discrete Mathematical Structures 2	3		3
MM 439	Linear Algebra	3		4
	Elective: Humanities or Soc. Science	3		3
	Elective: Humanities	3		3
		16		16

Upon the successful completion of requirements for this program, as listed above, the degree of **Associate in Science in Engineering and Science Transfer** will be awarded.

Engineering Technology Core Option

The Engineering Technology Core Program is a general technology program. It is for students who do not want to major in any specific technology but want a broad background. If, after spending one year in the Core Technology Program, a student becomes interested in a specific technology, it is possible for him to transfer to that technology.

This program is also designed to interface with both the Engineering Transfer Program and the Pre-Engineering Option (Level 2) of the General Studies Program. A student, after spending one year in either of these programs, may transfer to the Engineering Technology Core Program with no loss of credit. A student who completes the entire Engineering Technology Core Program is awarded the **Associate of Science Degree in Engineering and Science Transfer.**

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
MC 100	Chemistry 1	3	3	4
ET 115	Electronic Lab 1		4	2
GD 110	Engr. Graphics Module 1		3	1
ET 110	Basic Electronics 1	3		3
MM 150	Pre-Calculus 1	6		4
		15	10	17

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
MP 119	Technical Physics	3	3	4
ET 210	Basic Electronics 2	3		3
ET 215	Electronic Lab 2		4	2
MM 250	Pre-Calculus 2	6		4
MM 231	Engr. Computations	1		1
		16	7	17

SEMESTER 3

	Elective: Social Science	3		3
FB 320	Strength of Materials	4		4
FD 310	Drafting & Design 3	2	6	4
ME 330	Intro. to Material Sci. & Engr.	3		3
ME 331	Intro. to Material Sci. Lab		4	3
MM 155	Calculus 1	6		4
		18	10	21

SEMESTER 4

	Elective: Social Science	3	3
	Elective: Technical	3	3
ME 104	Intro. to Engr. 22 (Computer)	3	3
	Elective: Technical	3	3
MM 255	Calculus 2	6	4
		18	16

Science Transfer Option

BIOLOGICAL SCIENCES TRANSFER PROGRAMS

Springfield Technical Community College offers several biology transfer programs from which its graduates are well-qualified to enter the junior year of a biology major, pre-med major, pre-vet major, pre-dental major, or a pharmacy major. Students are advised by biology faculty members who will guide them in course selections to meet the requirements of the various colleges and universities to which the students may apply.

Students who cannot meet all the requirements for the degree of Engineering & Science Transfer may consider the option of an Associate degree in Liberal Arts Transfer or General Studies, while pursuing the goal of transferring to a four-year college to continue studies in the biological sciences.

Biology Option

SEMESTER 1

No.	Course Title	Class	Lab	Credits
MC 103	General Chemistry 21	3	3	4
MB 106	Biology 1	3	3	4
LE 100	English Composition 1	3		3
NS 100	Intro. to Sociology	3		3
MM 155	Calculus 1*	6		4
		18	6	18

SEMESTER 2

MC 203	General Chemistry 22	3	3	4
MB 206	Biology 2	3	3	4
LE 200	Comp. 2: Intro. to Lit.	3		3
NP 100	General Psychology	3		3
MM 255	Calculus 2**	6		4
		18	6	18

SEMESTER 3

MC 320	Organic Chemistry 1	3		3
MC 321	Organic Chemistry Lab		4	1
	Elective: Biology	3	3	4
	Elective: Social Science	3		3
	Elective: General (2)	6		6
		15	7	17

SEMESTER 4

MC 420	Organic Chemistry 2	3		3
MC 421	Organic Chemistry Lab		4	1
MB 410	Biological Literature: Analysis and Interpretation	1		1
	Elective: Biology	3	3	4
	Elective: Humanities	3		3
	Electives: General (2)	6		6
		16	7	18

*MM 150 Pre-Calculus 1, or MM 157 Calculus for Life Sciences I, may be taken in place of MM 155.

**MM 222 Finite Math 2, or MM 257 Calculus for Life Sciences 2, may be taken in place of MM 255.

Upon the successful completion of requirements for this program, as listed above, the degree of **Associate in Science in Engineering and Science Transfer** will be awarded.

Pre-Med/Pre-Dental/Pre-Vet Option

SEMESTER 1

No.	Course Title	Class	Lab	Credits
MC 103	General Chemistry 21	3	3	4
MB 106	Biology 1	3	3	4
LE 100	English Composition 1	3		3
NS 100	Intro. to Sociology	3		3
MM 155	Calculus 1	6		4
		18	6	18

SEMESTER 2

MC 203	General Chemistry 22	3	3	4
MB 206	Biology 2	3	3	4
LE 200	Comp. 2: Intro. to Lit.	3		3
	Elective: General	3		3
MM 255	Calculus 2	6		4
		18	6	18

SEMESTER 3

MP 130	College Physics 1	3	3	4
MC 320	Organic Chemistry 1	3		3
MC 321	Organic Chemistry Lab 1		4	1
NP 100	General Psychology	3		3
	Elective: Biology	3	3	4
	Elective: General	3		3
		15	10	18

SEMESTER 4

MC 420	Organic Chemistry 2	3		3
MC 421	Organic Chemistry Lab 2		4	1
MP 230	College Physics 2	3	3	4
MB 410	Biological Literature: Analysis and Interpretation	1		1
	Elective: Biology	3	3	4
	Elective: Humanities	3		3
	Elective: Social Science	3		3
		16	10	19

Upon the successful completion of the requirements for this program, as listed above, the degree of **Associate in Science in Engineering and Science Transfer** will be awarded.

Pre-Pharmacy Option

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
MC 103	General Chemistry 21	3	3	4
MB 106	Biology 1	3	3	4
MM 150	Pre-Calculus 1	6		4
	Elective: Social Science	3		3
		18	6	18

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
MC 203	General Chemistry 22	3	3	4
MB 206	Biology 2	3	3	4
MM 250	Pre-Calculus 2 (or)			
MM 222	Applied Mathematics 2	3		3
	Elective: Social Science	3		3
		15	6	17

SEMESTER 3

MP 130	College Physics 1	3	3	4
MC 320	Organic Chemistry 1	3		3
MC 321	Organic Chemistry Lab 1		4	1
AA 101	Prog. Med. Terminology	1	2	2
NS 100	Intro. to Sociology	3		3
	Elective: Humanities	3		3
		13	9	16

SEMESTER 4

MP 230	College Physics 2	3	3	4
MC 420	Organic Chemistry 2	3		3
MC 421	Organic Chemistry Lab 2		4	1
LE 203	Fundamentals of Speech	3		3
	Elective: Humanities	3		3
	Elective: Social Sci.	3		3
		15	7	17

Upon the successful completion of requirements for this program, as listed above, the degree of **Associate in Science in Engineering and Science Transfer** will be awarded.

CHEMISTRY OPTION

SEMESTER 1

No.	Course Title	Class	Lab	Credits
MC 103	General Chemistry 21	3	3	4
LE 100	English Composition 1	3		3
	Elective: Humanities	3		3
MM 155	Calculus 1	6		4
ME 103	Intro to Engineering	2	2	3
		17	5	17

SEMESTER 2

MC 203	General Chemistry 22	3	3	4
MP 132	University Physics 1	3	3	4
LE 200	Comp. 2: Intro. to Lit.	3		3
MM 255	Calculus 2	6		4
ME 206	Problem Solving Using Fortran 77 (or)			
MK 203	Non Numerical Processing (Pascal)	3	3	4
		18	9	19

SEMESTER 3

MC 320	Organic Chemistry 1	3		3
MC 321	Organic Chemistry Lab. 1		4	1
MP 232	University Physics 2	3	3	4
	Elective: Technical	3		3
MM 355	Calculus 3	6		4
	Elective: Foreign Lang./ Humanities	3		3
		18	7	18

SEMESTER 4

MC 420	Organic Chemistry 2	3		3
MC 421	Organic Chemistry Lab. 2		4	1
	Elective: Technical	3		3
	Elective: Humanities/ Foreign Language	3		3
MP 332	University Physics 3	3	3	4
	Elective: Math	3		3
		15	7	17

Upon the successful completion of requirements for this program, as listed above, the degree of **Associate in Science in Engineering and Science Transfer** will be awarded.

MATHEMATICS OPTION

SEMESTER 1

No.	Course Title	Class	Lab	Credits
LE 100	English Composition 1	3		3
	Elective: Soc. Science or Humanities	3		3
	Elective: Humanities	3		3
MM 155	Calculus 1	6		4
MK 103	Intro to Computer Prog.	3	3	4
		18	3	17

SEMESTER 2

LE 200	Comp. 2: Intro. to Lit.	3		3
	Elective: Social Science or Humanities	3		3
MM 255	Calculus 2	6		4
MK 203	Non Numerical Processing (Pascal)	3	3	4
MP 132	University Physics 1	3	3	4
		18	6	18

SEMESTER 3

	Elective: Engineering	3		3
	Elective: Social Science	3		3
MM 355	Calculus 3	6		4
MM 375	Discrete Math Structures 1	3		3
MP 232	University Physics 2	3	3	4
		18	3	17

SEMESTER 4

MM 439	Linear Algebra	3		3
	Elective: Humanities or Soc. Science	3		3
MM 455	Differential Equations	6		4
MM 475	Discrete Math Structures 2	3		3
	Elective: Engineering	3		3
		18		16

Upon the successful completion of requirements for this program, as listed above, the degree of **Associate in Science in Engineering and Science Transfer** will be awarded.

PHYSICS OPTION

SEMESTER 1

No.	Course Title	Class	Lab	Credits
MC 103	General Chemistry	3	3	4
LE 100	English Composition 1	3		3
MM 155	Calculus 1	6		4
ME 103	Intro to Engineering	2	3	3
		17	6	17

SEMESTER 2

MC 203	General Chemistry 22	3	3	4
MP 132	University Physics 1	3	3	4
LE 200	Comp. 2: Intro. to Lit.	3		3
MM 255	Calculus 2	6		4
ME 206	Problem Solving Using Fortran 77 (or)			
MK 203	Non Numerical Processing (Pascal)	3	3	4
		18	9	19

SEMESTER 3				
MP 232	University Physics 2	3	3	4
ME 320	Systems Analysis 1	3	3	3
	Elective: Social Science	3		3
	Elective: Technical	3		3
MM 355	Calculus 3	6		4
		18	6	17
SEMESTER 4				
MP 332	University Physics 3	3	3	4
	Elective: Technical	3		3
	Elective	3		3
MM 455	Differential Equations	6		4
ME 420	Circuit Analysis 2		4	3
		19	6	17

Upon the successful completion of requirements for this program, as listed above, the degree of **Associate in Science in Engineering and Science Transfer** will be awarded.

Course Descriptions

Accounting
(*See* Business Administration)

Anthropology
(*See* Sociology/Anthropology)

Automotive Technology

IA 110—GASOLINE ENGINE SYSTEMS 3 credits
Classroom discussion of several engine supporting systems including cooling, lubrication, crankcase ventilation, oil filtration. Also covered are: spark plugs, distributors, ignition points, engine compression, vacuum, batteries, fuel pumps, and exhaust systems. Laboratory exercises check, test and service these systems on live automobiles.

Offered Fall Semester

IA 120—DRIVE LINE & AIR CONDITIONING 3 credits
The driveline component involves the function, construction operation, servicing and troubleshooting of automotive type clutch assemblies, standard transmissions, propeller shafts, universal joints and differentials. The air conditioning section involves the study of basic automotive air conditioning theory and fundamentals of operation, includes various types of systems used in modern automobiles, basic and advanced methods of troubleshooting, charging, purging, evacuation, electronic leak detection and the servicing of var ous components. Presented through lecture, demonstration and practical laboratory exercises.

Offered Fall Semester

IA 210—GASOLINE ENGINES SERVICE 3 credits
A study involving the construction, operation, troubleshooting and overhaul techniques of modern gasoline engines. Includes valves and valve train components, pistons and piston connecting rod assemblies, crankshaft, cam-shaft, and related bearing assemblies. Laboratory assignments provide experience in disassembly and reassembly. Students make wear measurements and repair or make adjustments according to factory recommended procedures and specifications.

Offered Spring Semester

IA 220—AUTOMATIC TRANSMISSIONS 3 credits
Principles of operation, construction, servicing, and troubleshooting. Covers fluid couplings, planetary gears, hydraulic controls, seals and adjustments. Students participate in disassembly and reassembly of selected transmissions along with actual testing and service work in the school laboratory.

Offered Fall Semester

IA 230—AUTOMOTIVE GRAPHICS 2 credits
This course is designed to provide the student with a basic knowledge of the principles of mechanical drawing, and to develop the student's skill in using drafting equipment. Subjects covered include lettering, orthographic projection, isometric views, section views, dimensioning, and automotive electrical symbols and schematics. One hour of lecture and two hours of drafting laboratory.

Offered Spring Semester.

IA 310—FUEL & ELECTRIC SYSTEMS 3 credits
Fundamentals of electricity and magnetism, testing and servicing of batteries, construction and use of meters, AC alternators, control units, and starting systems. Includes a study of carburetion principles, fuel-air ratio requirements, venturi principles and basic carburetor circuits. Students participate in disassembly and reassembly of components and perform required bench tests.

Offered Fall Semester

IA 330—BRAKES & SUSPENSION 3 credits
Study of basic hydraulics, wheel and master cylinders, calipers, disc brakes, power units and system bleeding. Instruction in machining drums and discs are performed using modern service equipment. Study of steering geometry, linkage, suspension systems, springs, con-

ventional and power steering adjustments and alignment service are done by the students using the latest equipment.

Offered Fall Semester

IA 420—ENGINE DIAGNOSIS & TUNE-UP 3 credits
Covers theory of operation and testing of all components in the conventional and electronic-ignition system. A study of engine tune-up, exhaust emission devices, and diagnosis using modern test instruments, scopes and infrared exhaust analyzers. Students participate in bench work and actual service problems using the latest electronic devices and the dynamomoter lab. PREREQUISITE: IA 110, IA 310.

Offered Spring Semester

IA 430—ADVANCED AUTOMOTIVE SYSTEMS 3 credits
A study of the most up-to-date systems used in today's automobiles. Emphasis will be placed on the servicing and diagnosing of such systems as automotive diesel powerplants, computer controlled emission devices, electronic fuel injection, turbo-charged powerplants, and new products as they enter the market. Proper troubleshooting techniques will be demonstrated through the use of test equipment, and students participate in lab assignments. PREREQUISITE: IA 310.

Offered Spring Semester

Bilingual Spanish (Option to Executive Office Administration) *(See* Office Administration)

Bio-Medical Instrumentation Technology

EB 120—MEASURING PRINCIPLES 1 3 credits
Transducers used for temperature, pressure and flow measurements are discussed along with related concepts in physics. Effort is concentrated on such topics as sensitivity, resolution, recordability, linearity and accuracy, with reference to the above transducers. Although not a prerequisite, knowledge of the algebra of linear equations, exponential functions, as well as elementary Trigonometry will be helpful.

Offered Fall Semester

EB 230—MEASURING PRINCIPLES 2 3 credits
This course is an extension of EB 120, Measuring Principles 1, where the interest is shifted to acoustical, optical, and radiological devices.

Offered Spring Semester

EB 310—BIO-MED SYSTEMS 1 3 credits
This course provides an introduction to medical equipment. Major emphasis is placed on understanding the operation and application of medical instrumentation used in hospitals.

Offered Fall Semester

EB 330—SEMI–CONDUCTORS LAB 2 credits
An extension and expansion of material covered in ET 220 Active Networks 1. This course will emphasize the laboratory demonstration and investigation of solid–state devices and circuit identification and troubleshooting. PREREQUISITES: ET 110, ET 210, ET 220.

Offered Fall Semester

EB 340—DIGITAL ELECTRONICS LAB 2 credits
This course is a continuation of the laboratory sequence. Digital components such as AND, OR, and NOR gates will be studied. Additional investigations will include the study of flip-flops, drivers, counters, and displays. PREREQUISITES: ET 110, ET 220.

Offered Fall Semester

EB 350—DIGITAL ELECTRONICS 3 credits
An introductory course to Digital Electronics Concepts and Components. Topics include number systems, Boolean algebra, gates, cominational logic, flip–flops, counters, registers and memories. Logic families such as TTL, CMOS, and ECL will be studied with regard to propagation speed, power consumption, and frequency response.

Offered Fall Semester.

EB 410—BIO-MED SYSTEMS 2 3 credits
This course, a continuation of EB 310, provides the time and opportunity for students to work on instruments, observing their design, fabrication, assembly testing, and test figures. The student is expected to cultivate the art of recognizing a correctly operating instrument and an incorrectly operating unit. The training of his/her judgment to access and repair or replace a defective component is crucial to performance on the job. PREREQUISITE: Senior standing in Bio-Medical Instrumentation Technology. Restricted to Bio-Med students.

Offered Spring Semester

EB 420—INSTRUMENTATION PROJECT 2 credits
The student is to apply his developed theoretical and practical knowledge into the production of a project meeting course requirements. The student must select and develop an original project of his own choosing with complete paper and physical documentation as required by the project advisor. PREREQUISITE: Senior Standing.

Offered Spring Semester

EB 430—CODES, LAWS AND SAFETY 1 credit
The student is required to become aware of enforcing agencies and their software. He must know the intent and purpose of those standards. In addition, he must understand how to be in compliance with regulations. PREREQUISITE: Senior Standing.

Offered Spring Semester

EB 440—INTEGRATED CIRCUITS 3 credits
Students will be introduced to the operational amplifier and other linear integrated circuits. Topics will include both positive and negative feedback systems used with the op-amp to produce stability and reduce noise. Timers, comparators, voltage level detectors, signal generators, and filters will be treated.

Offered Fall Semester

Biological Sciences

MB 089—MATH/SCIENCE WORKSHOP 3 credits
The Math/Science Workshop is designed to develop the student's ability to integrate scientific methodology with mathematical processes. Gathering of scientific data, experimentation procedures, laboratory techniques, and the applied mathematical background necessary to perform the laboratory procedures are stressed. By permission. CO–REQUISITE: English/Reading Workshop.

Offered Summer Session Only

MB 090—BASIC BIOLOGICAL SCIENCE 4 credits
An Interdisciplinary, entry-level course in experimental biology. The traditional 5 skills of the scientific method are reinforced in both reading and lab-based science areas. The basic and integrated process skills employed by scientists are developed to prepare the student for college-level science experiences. NO PREREQUISITES.

Offered Spring Semester

MB 100—NATURAL HISTORY 4 credits
This course is designed to provide a basic background in botany, zoology and ecology. Field studies and laboratory experiences are designed to help potential pre-school teachers develop programs for their classes.

MB 102—PRINCIPLES OF BIOLOGY 1 4 credits
Principles of Biology is an introductory course designed to meet the needs of the student who has no background in chemistry or biology. Principles of Biology 1 is the first of a two-semester presentation of the basic concepts of life science for the transfer student who does not wish to major in science, and for the health career program candidate for whom biology is a prerequisite. The first semester provides an introduction to fundamental biological concepts including: the modern concept of life, the structure and function of cells, biochemistry, nutrition, and comparative human and animal anatomy and physiology. PREREQUISITES: MB 090 or completion of LD 091 (or placement above)

Offered Fall and Spring Semester

MB 103—BIOLOGIA EN ESPANOL 1 4 creditos
Este es un curso introductorio con el proposito de satisfacer las necesidades del estudiante que no tiene conocimientos en quimica y biologia. Los Principios de Biologia 1 es de dos semestres de los conceptos basicos de la uida para el estudiante quo no peinsa concentravse

en las ciencias. El primer semestre provee un estudio de los diferentes fundamentos biologicos que incluyen: el concepto moderno de vida, la estructura y funcian de las celulas, bioquimica, nutricion y comparaciones entre la vida humana y animales en anatomia y fisiologia.

MB 104—HUMAN BIOLOGY 1 4 credits

This biology course, required for the Medical Assistant and Medical Office Administration programs but open to all students, provides a basic knowledge of the structure and function of the human body. The course integrates the study of anatomy and physiology with basic chemistry and microbiology, studying normal systemic functions and diseases related to malfunctioning of these systems. Units studied include chemistry, cellular, tissues, microbiology, skeletal system, muscle system, and nervous system, accompanied by related laboratory procedures. NO PREREQUISITE.

Offered Fall Semester

MB 106—GENERAL BIOLOGY 1 4 credits

Geared to the prospective science major, the first semester of this course focuses on a study of chemical and cellular similarities in living organisms emphasizing the basic unity of life. General morphology and physiology of plants and vertebrate and invertebrate animals are discussed with emphasis on the vascular plant and human organ systems. PREREQUISITE: High school chemistry and biology or permission of the instructor.

Offered Fall Semester

MB 108—GENERAL BOTANY 4 credits

A one semester, non-majors course which does not require prior courses in biology, chemistry, or mathematics. In addition to providing an overview of the basic concepts of plant morphology and physiology, a survey is made of the major plant groups.

Offered Spring Semester

MB 109—BIOLOGY OF MAN 3 credits

This course is designed to meet the needs of the student who has no background in biological science. Basic biological concepts are presented with emphasis on the human body. This is a one-semester course, restricted to Spanish-speaking students, for those who require 3 credit hours in a non-laboratory science.

MB 113—MAN AND HIS ENVIRONMENT 4 credits

Man and His Environment is a four credit lab course designed to meet the needs of the non-science major. Presupposing no background in science, it focuses on man's interdependence with nature. The first half of the course emphasizes major principles of ecosystems while the second half deals with the entire spectrum of environmental problems affecting man and the possible solutions to them. PREREQUISITES: None.

Contingent upon enrollment of 12 or more students

MB 116—TERMINOLOGY OF THE HUMAN BODY 3 credits

This course is designed to develop the vocabulary associated with the organ systems of the human body. Through a knowledge of word roots, prefixes and suffixes, a substantial vocabulary is developed. This course is recommended for students who may need vocabulary development to enhance their study of anatomy and physiology, and is required for students enrolled in the Court Reporting program.

Offered Spring Semester

MB 120—ENVIRONMENTAL MICROBIOLOGY 3 credits

A general investigation of microbial structure, growth, and physiology. Particular attention is paid to the roles microorganisms play in the environment. The course meets for two hours of lecture and two hours of lab each week. PREREQUISITES: Chemistry.

MB 121—MICROBIOLOGY 4 credits

A basic study of microorganisms, their activities, destruction and control. The concepts of infection, immunity & hypersensitivity precede the survey of the microbiology of major infectious diseases. PREREQUISITES: High School Chemistry & Biology.

Offered Fall & Spring Semester

MB 127—FUNCTION AND STRUCTURE OF HUMAN SYSTEMS 3 credits

This course will present an overview of human anatomy and physiology as well as an introduction to microbiolgy. Normal structure and function of the selected systems will be discussed as well as the diseases and abnormalities associated with those systems. Microbial structure, transmission of microbial infections, and immunology will be discussed. The prin-

ciple objective is to offer the student a better appreciation of the human body and its integrative functions. NO PREREQUISITE.

Offered Fall Semester

MB 132—ANATOMY & PHYSIOLOGY 1 4 credits

A comprehensive study of the structure and function of the human body, emphasizing the normal which will serve as a background for the application of scientific principles both in everyday life and in the work of various health disciplines. Laboratory practice includes the study of tissues by using microscopic examinations and the dissection of animal specimens, along with physiological experimentation. Units covered are concerned with general introductory material, the skeleton, muscles and the nervous system. PREREQUISITES: Biology and Chemistry.

Offered Fall Semester

MB 133—ANATOMY & PHYSIOLOGY/MLT 4 credits

A series of lectures and laboratory experiences designed to provide students with a general understanding of the structure of the human body with emphasis placed on major physiological principles. Three lecture hours and one three-hour laboratory. PREREQUISITES: High school biology and chemistry.

Offered Fall Semester

MB 136—APPLIED PHYSIOLOGY 4 credits

This course takes various concepts in human physiology and by a lecture-laboratory approach the physiological principles are explained and illustrated by laboratory experience and clinically oriented tests. The instrumentation and methodology used in studying physiology and making clinical evaluation are emphasized. Aspects of the cardiovascular, respiratory, excretory, immune and nervous systems are investigated in this course. PREREQUISITES: Biology.

Offered Spring Semester

MB 138—HUMAN ANATOMY 1 4 credits

This is a course requiring no prior biological background. The organization of the human body from the cellular level to the various organ systems is included. Consideration of the pathological process in the human is integrated into the discussion of each organ system. This course combines lectures and appropriate demonstrations of physiological function. The first semester will include a consideration of cells and tissue and an emphasis on the regulatory systems of the body with particular emphasis on the nervous system. Laboratory skills are stressed.

Offered Fall Semester

MB 140—BIOCHEMISTRY FOR HEALTH SCIENCES 3 Credits

An introduction to biochemical principles. Emphasis is on the major metabolic pathways, the mechanisms of enzyme action, bioenergetics and the role of hormones and other regulatory substances. PREREQUISITES: General Biology, or Anatomy & Physiology, General Chemistry or permission of the instructor.

Offered Fall & Spring Semesters

MB 142—INTRODUCTORY NUTRITION 3 credits

Application of nutrition principles in the planning, selection and preparation of foods to meet one's physical, social and economic needs. Discussion of current issues such as vegetarianism, health foods, fad diets, weight control, food additives/preservatives, nutrition labeling, stretching the food dollar, and safe food handling will be presented. PREREQUISITES: None.

Offered Spring Semester

MB 202—PRINCIPLES OF BIOLOGY 2 4 credits

This course is a continuation of Principles of Biology 1 in which the following topics will be discussed: the structure and function of plants, sexual and asexual reproduction in plants and animals, embryology, principles of heredity, evolution, diversity, and ecological relationships of life forms. PREREQUISITE: MB 102 Principles of Biology 1.

Offered Fall & Spring Semesters

MB 203—BIOLOGIA EN ESPANOL 2 4 creditos

Este curso es una continuacion de los Principios de Biologia 1 en dunde los siguientes topicos seran discutidos: la estructuva y la funcion de las plantas, reproduccion sexual y asexual en plantas y animales, embriologia, principios de hereditacion, evolucion, diversidail y relaciones ecologicales de las formas de vida.

MB 204—HUMAN BIOLOGY 2 4 credits
As a continuation of Human Biology 1, this course includes units in the endocrine, circulatory, digestive, respiratory, urinary and reproductive systems. Laboratory procedures stressed in hematology, cardiovascular system, and urinalysis accompanied by dissection of appropriate animal specimens and microscopic studies. PREREQUISITE: MB 104.

Offered Spring Semester

MB 206—GENERAL BIOLOGY 2 4 credits
A continuation of General Biology 1 in which such topics as genetics, embryology, ecology, and evolution are discussed. In addition, major concepts of plant morphology and physiology are reviewed. A survey of plant and animal kingdoms is made, emphasizing diversities and similarities. PREREQUISITE: MB 106.

Offered Spring Semester

MB 209—BIOLOGY OF MAN 2 3 credits
This second semester is a continuation of MB 109. Certain concepts covered in the first semester as expanded in order to gain an understanding of the human body and man's interaction with his environment, while others are examined on a molecular level to comprehend the cellular approach to modern biology. This course will benefit those students going into the health fields, especially those taking Anatomy & Physiology or Human Biology in the future. Topics include: biochemistry, human anatomy and physiology, reproduction and development, modern genetics, modern evolution, and ecology. PREREQUISITE: MB 109.

Offered Spring Semester

MB 232—ANATOMY & PHYSIOLOGY 2 4 credits
A continuation of Anatomy & Physiology 1 concentrating on body metabolism, reproduction and endocrine control. Laboratory sessions are included. Emphasis is placed on association, correlation, critical thinking and overview of the body as a whole. PREREQUISITE: Anatomy & Physiology 1 (MB 132).

Offered Spring Semester

MB 238—HUMAN ANATOMY 2 4 credits
The second semester is a continuation of MB 131 and will include a consideration of the cardiovascular, respiratory, digestive, urinary and reproductive systems. PREREQUISITES: Human Anatomy 1 (MB 138).

Offered Spring Semester

MB 320—HISTOLOGY 4 credits
A study of the microscopic anatomy of cells, tissues, and organs as related to function. Emphasis is on mammalian systems. Discussion of microtechnique, electrophotomicroscopy, and tissue culturing will be introduced. PREREQUISITES: Biology (MB 106, MB 206); or Anatomy & Physiology (MB 132, MB 232); or Human Biology (MB 104, MB 204); or permission of instructor.

Contingent upon enrollment of 12 or more students

MB 350—EMBRYOLOGY 4 credits
This course will expose the student to the fundamental growth processes and mechanisms that govern normal growth and development in the chick and pig embryos. Emphasis will be placed on the development of major organs and organ systems and how these systems develop into normal adult structures. Laboratory experiments, models and slides will be used to reinforce the basic principle of normal development and thus provide a basis for the discussion of abnormal development. PREREQUISITES: Biology (MB 106, MB 206); or Biology (MB 102, MB 202); or Anatomy & Physiology (MB 132, MB 232); or permission of instructor.

Contingent upon enrollment of 12 or more students

MB 360—GENETICS 4 credits
An introduction to the principles of classical and biochemical genetics, surveying microbial genetics, population genetics and human heredity. Laboratory experiments are designed to demonstrate the major principles discussed in lecture. PREREQUISITE: General Biology, Anatomy & Physiology, General Chemistry or permission of instructor.

Contingent upon enrollment of 12 or more students

MB 410—BIOLOGICAL LITERATURE: AN ANALYSIS AND INTERPRETATION 1 credit
This course is designed to introduce the student to the methods of finding, evaluating, and using research literature in the biological sciences. In addition to familiarizing the student with the use of library and recommended procedures for conducting bibliographic searches, group discussions will focus on scientific methodology, data analysis, and the systematic evaluation of research papers. Independent written and oral presentation of an assigned topic will be required. PREREQUISITES: MB 106 and MB 206, or MB 132 and MB 232, or permission of instructor.

Offered Spring Semester

MB 900—DIRECTED STUDY IN THE BIOLOGICAL SCIENCES variable credit
Semester hour credit will vary from one to four, depending upon the written, agreed-upon, approved, student/professor contract. PREREQUISITE: Permission of instructor.

Business Administration

ACCOUNTING

BA 110—ACCOUNTING 1 4 credits
An introductory course designed to present to the student the concepts and principles of accounting. Major emphasis is placed upon the recording, classifying and summarizing of the financial data generated within a service or merchandise sole proprietorship business. Additional topics such as specialized journals, payroll, cash controls, voucher systems, notes receivables, notes payable, accounts receivable and bad debts, inventories and property, plant and equipment are examined.

Offered Fall & Spring Semester

BA 210—ACCOUNTING 2 4 credits
This course is designed to complete the student's coverage of the fundamental principles of accounting. The course covers the accounting for and reporting of financial information for the partnership and corporate forms of organization (sole proprietorship was emphasized in Accounting 1). Corporate capital structure, bonds payable, temporary and long term investments are examined in detail. The preparation of the "Statement of Changes in Financial Position" is explored as well as price level adjustments and the analysis and interpretation of financial statements. The accounting for manufacturing concerns under the job order and process cost accumulation methods are examined. PREREQUISITE: BA 110.

Offered Fall & Spring Semester

BA 310—INTERMEDIATE ACCOUNTING 1 3 credits
This course is designed to provide the student with a comprehensive study of the generally accepted accounting principles and a thorough knowledge of the preparation as to form and content of the general purpose financial statements. The nature, importance, recording procedures and presentation of the following specific balance sheet accounts are systematically examined: cash, accounts receivable, marketable securities, inventories and accounts payable. Due to the complexities of this course, four classroom hours are required to present the material. PREREQUISITE: BA 210.

Offered Fall Semester

BA 311—COST ACCOUNTING 3 credits
This course provides an overview of the nature and purposes of cost accounting. Topics covered include cost concepts, manufacturing financial statements, job cost and process cost accumulation methods, material labor and overhead planning and control procedures, standard cost accounting system, master budgeting, and methods of variance analysis are examined. Due to the complexities of this course, four classroom hours are required to present the material. PREREQUISITE: BA 210.

Offered Fall Semester

BA 312—MANAGERIAL ACCOUNTING 3 credits
An introduction to the internal uses of accounting for management planning and control. The point of view will be on the use rather than the construction of accounting data. Areas of study include cost concepts and techniques, cost-volume-profit analysis, segment margin

techniques, relevant costs, standard costing, and master budgeting. PREREQUISITE: BA 210.

Offered Fall Semester

BA 313—INTRO. TO FEDERAL INCOME TAXES 3 credits
This course presents a comprehensive explanation of the Federal structure and the accepted practice used in applying tax principles in specific areas as they relate to the preparation of returns involving individuals; Massachusetts income taxes as they affect individuals are also reviewed. PREREQUISITES: BA 210.

Offered Spring Semester

BA 314—SMALL BUSINESS PLANNING AND CONTROL 3 credits
This course covers the techniques of accounting and financial analysis applicable to the following topics: credit and collection, cash budgeting, cash flow projections, and relevant cost analysis. In addition, the student will learn to evaluate different sources and costs of obtaining capital. PREREQUISITE: BA 110 or BA 111.

Offered Fall Semester

BA 410—INTERMEDIATE ACCOUNTING 2 3 Credits
This course provides a further examination of the nature, importance, recording procedures and presentation of balance sheet items initiated in Intermediate 1. The areas of plant assets, long term liabilities, investments, and corporation equity accounts are all covered in detail. Specialized accounting methods for pensions, leases and price level adjustments are examined. Time permitting, the funds flow statements and special error correction techniques will be covered. Due to the complexities of this course, four classroom hours are required to present the material. PREREQUISITE: BA 310.

Offered Spring Semester

BA 417—GOVERNMENTAL AND FUND ACCOUNTING 3 credits
Specialized area of accounting developed in answer to the specialized needs of non-profit organizations. Covers principles of fund accounting as applied to governmental institutions and hospitals. Particular emphasis on accounting for municipal governments. PREREQUISITE: BA 210.

Offered Continuing Education

BP 101—OFFICE ACCOUNTING 1 3 credits
An introductory course covering the basic structure, concepts and principles of accounting. Emphasis is placed upon the daily record keeping, classification and summarization of the financial information which flows within a business enterprise. The accounting cycle including statement presentation is examined along with such areas as cash, receivables, payables, payroll and taxes. A practice set is assigned and completion of it required. (This course is restricted to the office administration, administrative bookkeeper, or technology students.) Transfer students should be taking BA 110.

Offered Fall Semester

BP 103—MEDICAL OFFICE ACCOUNTING 3 credits
An introductory course covering the basic structure, concepts and principles of accounting. Emphasis is placed upon the daily record keeping, classification and summarization of financial information which flows within a medical office. The accounting cycle, including statement presentation, is examined along with additional financial topics such as cash control, receivables, payables, payroll and payroll taxes. Additional topics include professional fees and patient's credit, billing and collections, computerized billing as well as alternative accounting systems such as single entry and pegboard methods. A survey of management responsibilities is discussed along with the assigning and completing of a medical office accounting practice set. A definite effort is made to correlate the work to that of a medical situation. (The course is restricted to the medical office administration students).

Offered Spring Semester

BP 106—MEDICAL ASSISTANT RECORDKEEPING 1 credit
This course is designed to introduce the medical assistant to the basics of medical office recordkeeping. A brief survey of the methods and procedures of billing, banking, and bookkeeping will be presented.

Offered Spring Semester

BP 202—OFFICE ACCOUNTING 2 3 credits
The course expands upon the fundamentals learned in College Accounting 1 and examines the role of accounting in the various types of business enterprises, focusing on merchandising. Records maintained on the accrual basis, accounting for long-term debts, investments and deferred and payable items are mastered and integrated with the complete accounting cycle. PREREQUISITE: BP 101 or equivalent. (This course is restricted to office administration students. Transfer students should be taking BA 210.)

Offered Spring Semester

Courses will be offered subject to sufficient enrollment.

FINANCE

BF 110—INTRODUCTION TO FINANCE 3 credits
This course is designed to acquaint the student with the manner in which the financial system functions and with the techniques used to reach financial decisions. Major topics to be studied include the nature of money and financial institutions, central banking, securities markets, managing and financing of organizational assets. Special emphasis is given to financial decision-making.

Offered Fall and Spring Semester

BF 310—MONEY AND BANKING 3 credits
The changing nature and functions of money are studied in considerable detail. The role of the banking system as a creator of money and credit and of the Federal Reserve System as regulator of the supply of money and credit is analyzed. The course includes an extensive study of non-bank financial intermediaries. A macroeconomic model is developed within which the relative efficiency of monetary and fiscal policy is examined. PREREQUISITE: BF 110.

Offered Fall Semester

BF 313—PERSONAL FINANCIAL PLANNING 3 credits
This course is designed to provide the student with an analysis of the various components making up the financial plan. From this basis, the various products available are examined in depth. These include the various types of insurance including Life, Accident and Health, Property, Liability and Disability Income. Annuities are also included within this section. In addition, various investments available are discussed. These include savings, stocks, bonds, mutual funds, tax-sheltered investments and commodities. Interwoven throughout these discussions is the potential impact these investments have on an individual's federal income tax. The last major areas to be investigated are those of estate analysis and retirement planning. Alternative ways to handling these areas are presented and discussed.

Offered Continuing Education

BF 410—INVESTMENTS 3 credits
This is a beginning course in investment management with special emphasis on the principles governing individual and institutional investment programs. Topics covered include the mechanics of investment, investment media, securities analysis and portfolio management. PREREQUISITE: BF 110.

Offered Spring Semester

BF 411—MANAGERIAL FINANCE 3 credits
The principle focus of Managerial Finance is on decisions and actions that are undertaken in light of the firm's objectives. Certain key concepts and commonly used tools of financial analysis are developed. Included are such topics as ratio analysis, sources and the use of funds analysis and financial control techniques. This material provides a useful overview of finance, and the ideas and terminology developed here facilitate an understanding of all the other parts of the course. Topics to be covered include decisions involving working capital, long-term assets, sources and forms of long-term financing, financial structure and leverage and cost of capital calculations. PREREQUISITES: BF 110, BA 210.

Offered Spring Semester

Courses will be offered subject to sufficient enrollment.

BUSINESS LAW

BB 310—BUSINESS LAW 1 3 credits
The primary purpose of a course in business law is to develop an understanding of the legal framework of business—the basic principles of law that apply to business transactions. Since the students of the course are not seeking training as lawyers, preventive law becomes an important objective. Emphasis is spent on contracts, agency, and employment.
Offered Fall and Spring Semester

BB 311—BASIC LEGAL CONCEPTS 1 credit
The course content is designed to acquaint medical personnel with various legal aspects germane to their profession, and with applying these principles to medical situations.
Offered Fall and Spring Semesters

BB 410—BUSINESS LAW 2 3 credits
The purpose outlined in Business Law 1 is continued with emphasis upon personal property, bailments, the Law of Sales, commercial paper such as promissory notes, drafts and checks, real property arrangements such as Landlord & Tenant, Leases, Wills and Intestacy. PREREQUISITE: BB 310.
Offered Fall and Spring Semester

BB 412—SMALL BUSINESS LAW AND INSURANCE 3 credits
This course is designed to familiarize the small business owner or his other professional staff with legal rights and responsibilities. Included is a realistic approach to the laws that affect your business, including the code and government regulations. In addition, we will explore the various forms of legal organization. Lastly, basic knowledge in insurance and tax liabilities is pursued.
Offered Fall Semester

BB 413—REAL ESTATE LAW 3 credits
This course aims to acquaint the participant with the legal processes and instruments involved in real estate transactions; it does not attempt to supplant the services of the attorney. Included are titles, easements, deeds, contracts, agreements of sale, mortgages, foreclosures and redemptions, liens, wills and probate, tenant and landlord relations, leases and conveyancing. Public aspects of real estate business, such as construction and zoning laws, taxes and insurance are considered.
Offered Continuing Education

BP 312—MEDICAL LAW FOR HEALTH PERSONNEL 3 credits
This course will cover the relationship between the Law and Society as primarily applicable to the practice of medicine. Discussions will cover the sources and type of law, authority and liability of medical and paramedical personnel and their licensure and registration. Medical ethics, confidentiality, insurance, informed consent and negligence will be considered along with torts, contracts and crimes.
Offered Spring Semester

Courses will be offered subject to sufficient enrollment.

MANAGEMENT

BK 110—PRINCIPLES OF MANAGEMENT 3 credits
This course provides the student with an introduction to the art and sciences of management. A detailed analysis is made of the planning, organizing, leading, and controlling functions. Particular emphasis is placed upon the decision-making process.
Offered Fall and Spring Semester

BK 112—MANAGERIAL SUPERVISION 3 credits
This course examines the unique role of the first-level manager and the skills essential to effective performance. Because supervisors deal primarily with immediate subordinates, emphasis is placed on interpersonal skills and relationships, particularly motivation, performance reviews, and conflict management.
Offered Fall & Spring Semesters

BK 310—PERSONNEL MANAGEMENT 3 credits

The primary aim of a course in personnel management is to provide an understanding of the role of the personnel department in the development and administration of the personnel program and the processes relating to it. Areas of study include the basic functions relating to the recruitment, selection, training, motivation, and remuneration of employees. PREREQUISITE: BK 110.

Offered Fall Semester

BK 312—WOMEN, MANAGEMENT, AND LEADERSHIP 3 credits

This course is designed to prepare women to be effective participants and leaders in organizational settings. Students will examine the "holistic leadership model for women" to develop an understanding of the interactional effects among societal, organizational, and self norms and expectations of our leadership in organizations. Objectives of the course are: 1) to develop an appreciation of the role of cultural differences in our ability to be effective leaders; 2) to increase our understanding of our own leadership styles through the assessment of our attitudes, values, and organization; 3) to develop confidence in our styles of leadership as women, and to develop strategies for the effective application of our styles to organizational settings; and 4) to increase our knowledge of leadership theory as well as to critique the theory in terms of its relevance to women's experience in organizations. PREREQUISITE: BK 110 or BK 112.

Offered Periodically

BK 410—LABOR RELATIONS 3 credits

This course is designed to expose the student to the philosophy, activities and objectives of the American labor movement. Areas of analysis include the history of unionism, labor legislation and the search for institutional security. Particular emphasis is given to the nature, content, negotiation, and administration of a collective bargaining agreement. PREREQUISITE: BK 110.

Offered Spring Semester

BK 411—PRODUCTION MANAGEMENT 3 credits

This is a practical course emphasizing the organization and operation of the production system. Included are capital equipment utilization, work measurement and methods analysis, cost, quality and production control, job evaluation and wage incentive systems. Consideration is given to the quantitative aspects of modern management and their value to the executive. PREREQUISITE: BK 110.

Offered Spring Semester

BK 412—TECHNIQUES OF MANAGEMENT 3 credits

Application of principles and analytical techniques for planning and control are presented within a problem solving context. Topics to be considered include decision theory, waiting line methods, linear programming, network programs, inventory models, and forecasting. In addition, participation in the management of a firm in a simulated industry is required. PREREQUISITES: BK 110, MM 122.

Offered Spring Semester

BK 413—ORGANIZATIONAL BEHAVIOR 3 credits

This course examines the underlying sources, processes, and consequences of human behavior in organizations. The principles of contemporary behavioral science are used to analyze, understand, predict, and control that behavior. Since organizational behavior is viewed as the result of the interaction of individuals, groups, and of the organization itself, the human element is emphasized in the analysis of organizational design and management. PREREQUISITES: BK 110, and NS 100 or NP 100

Offered Spring Semester

BK 417—PURCHASING 3 credits

This course is designed to introduce the student to the world of modern purchasing. An overview of purchasing management and organization along with policies and procedures is presented. The basic legal aspects of purchasing, purchasing ethics, sources of supply and value analysis are explored and presented for class discussion. Modern methods of purchasing are reviewed. PREREQUISITE: BK 110.

Offered Continuing Education

BK 419—OFFICE MANAGEMENT AND CONTROL 3 credits
This course exposes the student to the problems of the Office Manager, including the major ideas of what has to be done, how it is going to be done, and who is going to do it. In addition, a study of the control procedures on information and personnel is reviewed. PREREQUISITE: BK 110.

Offered Continuing Education

BK 420—SMALL BUSINESS MANAGEMENT 3 credits
This course is designed to expose the student to the challenges of starting, operating and evaluating the effectiveness of the small business. Topics covered include the various forms of organization, financing, cost structure, location, sources of personnel, marketing and completion. PREREQUISITES: BA 210, BK 110.

Offered Spring Semester

BK 421—SMALL BUSINESS FORMATION 3 credits
This course is designed to expose the non-business student to a practical discussion of the principles and problems of owning and operating a small business. The course will provide a step-by-step, no-nonsense,, "how to" approach in establishing a new business, as well as examining the basic operating problems faced by the small business manager in an ongoing business enterprise. The main objective of the course is to help the non-business student avoid some of the pitfalls of starting and operating a small business. PREREQUISITES: NONE (This course is restricted to the non-business student.)

Offered Spring Semester

Courses will be offered subject to sufficient enrollment.

GENERAL BUSINESS

BP 110—PRINCIPLES OF REAL ESTATE 3 credits
This course covers the basic laws and principles of Massachusetts Real Estate. It touches upon legal processes and instruments involved in real estate operation, titles, deeds, mortgages, liens, contracts and leases. It gives understanding, background and terminology necessary for advanced study in specialized courses. This could well assist those preparing for the license examination.

Offered Continuing Education

BP 111—PRINCIPLES OF INSURANCE 3 credits
The historical background, and developing and understanding the basic principles of insurance as well as the nature and operation of the insurance business. Emphasis given to the principles which underlie the entire field of insurance. Understanding is developed in the fundamental areas of indemnity, insurable interest, co-insurance, subrogation, proximate cause, other insurance, risk, requisites of insurable risk, deductibles, valued policies, probability and many others. The important functional areas of rating, underwriting, marketing and adjusting are considered as well as the subjects of regulation, reinsurance and company organization. The power and functions of insurance agents and brokers.

Offered Continuing Education

BP 115—INTRODUCTION TO BUSINESS 3 credits
The purpose of this course is to provide the non-business student with a general overview of business. The course is designed to acquaint the student with the basic departmental functions of business, emphasizing the manufacturing, financial, sales/marketing and management information systems areas. A further examination will be conducted stressing the interrelationships between these vital operating departments and the contributions that each provides towards the successful operation of the business. Close attention will be paid to the interdependence and compe itive spirit, as well as the unique problems facing each segment.

Offered Fall & Spring Semester

BP 331—RESIDENTIAL APPRAISAL 3 credits
This course covers the fundamentals of appraising as applied to residential properties. Included are purposes of appraisals, varying concepts of valuation, acquisition of data used for appraisals covering tables, techniques, special factors and final estimates. Writing of reports and preparation of expert testimony. PREREQUISITE: BP 110.

Offered Continuing Education

BP 332—COMMERCIAL & INDUSTRIAL APPRAISAL 3 credits
The principles covered in Residential Appraisal are applied to commercial and industrial properties. An analysis of business neighborhoods covering apartment buildings and hotels as well as all types of industrial and manufacturing properties is made. PREREQUISITE: BP 331.

Offered Continuing Education

BP 333—REAL ESTATE INVESTMENTS & FINANCING 3 credits
Various opportunities and inherent problems in the investment in real estate are reviewed. In addition, the fundamentals of financing real estate are covered. Included are instruments of finance, particular applications to leases, bond issues, mortgage lending and income tax effects as a factor. Competing agencies of federal financing organizations and real estate brokers are reviewed. PREREQUISITES: BP 111, BF 110.

Offered Continuing Education

BP 334—REAL ESTATE MANAGEMENT 3 credits
This course covers the real estate operator's functions in exchange and speculation in properties, financing and developing, whether he is running his own business or a department in a brokerage firm. Problems inherent in managing apartments and cooperative apartments are reviewed. PREREQUISITE: BP 110.

Offered Continuing Education

BP 341—SMALL BUSINESS PERSONNEL MANAGEMENT 3 credits
The central theme of this course is the personnel responsibility and function of the small business manager. Full attention is devoted to the traditional personnel topics and functions, including personnel policies; employee selection; training; labor relations; pay and benefits administration; employment laws; and health and safety.

Offered Fall Semester

BP 342—SMALL BUSINESS PRACTICUM 3 credits
The student applies knowledge obtained in previous courses to a real business situation. This is done by assigning a small group of students to a new or existing business that is in need of management consultation in the various problematic aspects of the business, including technical assistance in the development of a loan proposal, financial projections, and business planning. This course provides the student with the same valuable experience that Co-op offers the students in other academic disciplines. PREREQUISITE: should be taken after all other required small business courses.

Offered Spring Semester

BP 343—SMALL BUSINESS SEMINAR 3 credits
A variety of problems encountered by small business are discussed and evaluated in this course. The student must apply basic business concepts and tools acquired in previous courses to problematic situations presented by way of case studies and small business game simulation. Guest lecturers also will be brought in to discuss management problems and techniques for solving these problems, bringing to the class a different perspective and, it is hoped, fresh ideas. PREREQUISITES: BP 112, BP 314, BP 341.

Offered Spring Semester

Courses will be offered subject to sufficient enrollment.

MARKETING

BI 110—PRINCIPLES OF MARKETING 3 credits
This course emphasizes a well-rounded basic approach that provides maximum exposure to the role of marketing in today's economy which is a marketing economy—not just for marketers of conventional products and services, but also for government, social institutions and social causes and the professions. To achieve this exposure, an overview is presented of the marketing process including marketing research, consumer behavior, market segmentation, target consumers, product strategy, packaging, branding, pricing and the promotional mix. The course will service two types of students—those who want a knowledge of marketing fundamentals, principles and activities to meet specific personal or professional needs, and those who plan a career in marketing.

Offered Fall and Spring Semester

BP 112—SMALL BUSINESS MARKETING 3 credits
The various aspects of the marketing function tailored to the small business organization are presented in this course. The course is designed to teach students pricing and profit policies, sales techniques, sales forecasting, and territorial structuring. In addition, marketing research methodologies and resources will be addressed.

Offered Spring Semester

BI 310—RETAILING 3 credits
The major goals of the course are to enable the student to become a good retail planner and decision maker and to help focus on change and adaptation to change. The student will be introduced to the technical knowledge necessary for retail management. An overview of retailing is presented, including such vital areas as organizational structure, physical security, consumer be avior, personnel management, marketing research, merchandising, planning promotional activities, store planning and inventory control. PREREQUISITE: BI 110.

Offered Fall Semester

BI 311—ADVERTISING AND PROMOTION 3 credits
This course is designed to teach students advertising's fundamental principles and to familiarize them with its strategic, managerial, creative, and financial elements. The student will be exposed to developing advertising strategy, media strategy and selection, creative strategy and execution, budgeting, and control, utilizing the case study method where feasible. PREREQUISITE: BI 110.

Offered Fall Semester

BI 313—CONSUMERISM 3 credits
The development of an analytical structure within which the underlying issues facing the marketing profession are studied. The pre-purchase, purchase and post-purchase phases of a transaction receive detailed consideration in terms of the legal obligations of the buyer, the seller and the financier. Contemporary consumer concern with advertising, pricing and selling practices is examined along with legal requirements covering product safety, warranties, liability and consumer recourse. PREREQUISITE: BI 110.

Offered Continuing Education

BI 410—CONSUMER BEHAVIOR 3 credits
The aim of this course is to understand why people buy as the foundation for developing concepts for meeting consumer needs through selling, advertising, distribution and related activities. Behavioral considerations affecting consumer purchase decisions are analyzed. These include the personality, motivational, cognitive and attitudinal aspects, along with the social influences which affect consumer interaction with business firms. PREREQUISITE: BI 110.

Offered Spring Semester

BI 411—SALES AND SALES MANAGEMENT 3 credits
This course will introduce the student to the fields of sales and sales management. A comprehensive coverage of the tasks of the sales manager as organizer, administrator, and decision maker will be provided in a systematic manner. The most contemporary concepts in sales management as well as the more traditional practices will be explored by integrating both theory and practice. The sales portion of the course will present the theories, concepts, techniques and processes involved in selling. PREREQUISITE: BI 310

Offered Spring Semester

BI 412—MERCHANDISING 3 credits
A study of the principles and procedures used in selection, promotion and selling of hard and soft goods merchandise in retail stores to develop an understanding of the major considerations of buying, inventory control, pricing and consumer buying motives. PREREQUISITE: BI 310.

Offered Spring Semester

Courses will be offered subject to sufficient enrollment.

Chemistry

MC 100—CHEMISTRY 1 4 credits
A study of the fundamental principles of chemistry in relation to the properties, composition and structure of matter. A primary aim of the course is to prepare students for subsequent courses in the technologies. Chemistry 1 is a one-semester terminal chemistry course. Three

one-hour lectures per week, one three-hour lab. PREREQUISITE: Concurrent Math MM 091 & MM 093.

Offered Fall and Spring Semester

MC 101—GENERAL CHEMISTRY 101 4 credits

A one-year general chemistry course for students in the Health and Sciences and for transfer students who do not wish to major in a science or engineering. The first semester of the course will consist of a study of the general principles of inorganic chemistry, stressing concentration, dilution, equilibrium, and descriptive chemistry. Three one-hour lectures per week, one three-hour lab. PREREQUISITE: Math MM 091-MM 093 and one year of high school laboratory science or permission of instructor.

Offered Fall Semester

MC 103—GENERAL CHEMISTRY 21 4 credits

An introductory course in general chemistry designed to parallel the first year chemistry course offered at universities for science and engineering students. Modern theories of chemical reactions, chemical bonding, atomic and molecular structures are emphasized. Three one-hour lectures per week, one three-hour lab. PREREQUISITES: One year of high school physical science and math (MM 131) or equivalent.

Offered Fall Semester

MC 111-MC 118—GENERAL CHEMISTRY 21 & 22

Offered Fall & Spring. One credit per module.

MC 111—MODULE 1

Units and coversions, atomic structure, atomic weight, mole concept, balancing equations, theoretical yields.

MC 112—MODULE 2

Gases, pressure, Boyle's, Charles', Guy Lussac's and Dalton's Laws, ideal and real gases, kinetic theory.

MC 113—MODULE 3

Periodic Table, electronic configuration of atom, quantum theory, bonding molecular geometry and bonding.

MC 114—MODULE 4

Physical properties in relation to structure, changes in states, solutions.

MC 115—MODULE 5

Equilibrium.

MC 116—MODULE 6

Thermodynamics and rates of reactions.

MC 117—MODULE 7

Acids and bases.

MC 118—MODULE 8

Oxidation, reduction, introduction to organic chemistry. PREREQUISITES: Same as Chemistry 21. Each module includes four laboratories which must be completed before the next module can be started.

MC 140—SEMINARS IN APPLIED CHEMISTRY 1 credit

This course is a series of lectures by invited chemists practicing in non-academic laboratories. Sponsored jointly with the Cooperating Colleges of Greater Springfield.

Offered every other Spring Semester

MC 201—GENERAL CHEMISTRY 102 4 credits

The second semester will concentrate on organic & biochemistry. PREREQUISITE: General Chemistry 101 (MC 101). Three one-hour lectures per week, one three-hour lab.

Offered Spring Semester

MC 203—GENERAL CHEMISTRY 22 4 credits

A continuation of Chemistry 21. Equilibrium, reaction rate, thermodynamics, acid/base and redox reactions are stressed. The student is also introduced to basic organic chemistry and quantitative analysis.

Offered Spring Semester

MC 205—CHEMISTRY OF LITHOGRAPHY 2 4 credits
Topics in chemistry relating to the graphic arts including photography and photographic processes, colors, inks and printing. Laboratory.

Offered Spring Semester

MC 300—AUTOMOTIVE CHEMISTRY 4 credits
A study of specialized topics which are of particular interest to automotive technology. Topics covered are petroleum and how it is refined, gasoline, diesel fuel, gaseous fuels, atmospheric pollution, lubrication and lubricants, the chemistry of batteries, corrosion, hydraulic fluids and antifreeze compounds. The laboratory work consists of selected experiments with various small engines and oil and fuel testing apparatus. PREREQUISITE: Chemistry 1 (MC 200).

Offered Spring Semester

MC 319—ORGANIC CHEMISTRY 1 3 credits
First semester of a one year organic chemistry course at the university level. This is the same course as MC 320 without the lab. Three one hour lectures per week. PREREQUISITE: MC 203 or permission of instructor.

MC 320—ORGANIC CHEMISTRY 1 3 or 4 credits
A one-year course in organic chemistry at the university level. Reaction, synthesis and mechanism of organic reactions will be studied. This course is designed for transfer students with majors in chemistry, biology, pre-med or pre-dental. Three three-hour lectures per week, one four-hour lab per week. PREREQUISITE: Chemistry MC 203 or permission of instructor.

Offered Fall Semester

MC 330—BIOCHEMISTRY 4 credits
A one-semester course in organic chemistry at the university level. Reaction, synthesis and mechanism are studied. This course is designed for transfer students with majors in chemistry, biology, pre-med or pre-dental. Three 3-hour lectures per week, one four-hour lab per week. PREREQUISITE: Chemistry 22 or permission of instructor.

Offered Fall Semester

MC 350—INSTRUMENTAL ANALYSIS 4 credits
The theory and practice of modern analytical methods utilizing spectroscopic, chromatographic and colorimetric techniques will be stressed. The laboratory will include selected experiments having clinical and industrial relevance. PREREQUISITES: General Chemistry MC 203 or MC 201 or permission of instructor.

Offered Fall Semester

MC 370—INDEPENDENT CHEMISTRY STUDY 1 1, 2, 3, or 4 crs
Independent study of laboratory project in Chemistry under direction of an instructor. PREREQUISITE: Permission of the Department Chairperson.

Offered Fall and Spring Semester

MC 419—ORGANIC CHEMISTRY 2 3 credits
Second semester of a one year organic chemistry course at the university level. This is a continuance of MC 319. Three one hour lectures per week.

MC 420—ORGANIC CHEMISTRY 2 3 or 4 credits
A continuation of Organic Chemistry MC 320.

Offered Spring Semester

MC 470—INDEPENDENT CHEMISTRY STUDY 2. 1, 2, 3, or 4 crs.
A continuation of MC 370. PREREQUISITE: MC 370 and permission of Department Chairperson.

Offered Fall and Spring Semester

Civil Engineering Technology

GC 110—CONSTRUCTION MATERIALS 2 credits
A comprehensive introduction to the many building materials is presented as they apply to the construction industry. Materials covered include wood, steel, non-ferrous metals, glass, paper, and plastics. Emphasis is placed on their physical properties, methods of production and their construction applications. Two lecture hours.

Offered Fall Semester

GC 120—ARCHITECTURAL DESIGN & SPECIFICATIONS 1 4 credits
An introduction to architectural and construction graphic techniques and written specifications. Emphasis is on residential and light commercial structures including site planning, floor plans, elevations, sections, isometrics, mechanical and electrical drawings and specifications, and blueprint readings. Two lecture and six lab hours.

Offered Fall Semester

GC 140—CONSTRUCTION METHODS & EQUIPMENT 2 credits
An introductory study of engineering fundamentals as applied to common construction equipment. Particular emphasis is placed upon the operating characteristics of and the production rates of power shovels, draglines, dozers, scrapers and other construction equipment. Several special construction methods are also discussed. Two lecture hours.

Offered Fall Semester

GC 220—CONSTRUCTION ESTIMATING 3 credits
An introduction to estimating and construction office practice to familiarize the student with the construction process as a whole; the ways in which contractors organize their offices to accomplish jobs in construction; the generation of plans and specifications and their use, systems of accounting; and how material quantity "take-off" forms the basis for accounting. Two lecture hours and three laboratory hours.

Offered Spring Semester

GC 230—HYDRAULICS AND DRAINAGE 2 credits
Basic principles of overland flow, runoff collection, and the performance of related appurtenances including culverts are covered. Selected portions of systems are designed, and appropriate materials/equipment are selected. The concepts of continuity, energy, and pressure are included. The weekly two-hour laboratory is devoted to design and solutions of problems related to theory. One lecture hour and two laboratory hours per week.

Offered Spring Semester

GC 305—LANDSCAPE SURVEYING 3 credits
A course teaching the basic surveying operations used in landscape work. The use of simple instruments such as tapes and hand levels is covered first, followed by study of transits and construction levels. Mapping and contour studies are carried out and the use of surveying in typical landscape operations is stressed. PREREQUISITE: MM 120 or MM 097 (MM 093)

Offered Fall Semester

GC 310— SURVEYING 1 4 credits
The theory and practice of construction surveying. Field practice is given in the use of tape, transit, level, theodolite, and electronic distance measuring (EDM) equipment. This is a laboratory-oriented course encompassing baseline, differential, and profile leveling, establishment of contours, traverse closures, stadia, construction stakeout of buildings and pipeline layout. Techniques of preparing working plans and maps from recorded data are developed. Two lecture hours and six laboratory hours.

Offered Fall Semester

GC 320—SOILS & FOUNDATIONS 3 credits
Analysis of subsoil conditions, bearing capacity and settlement analysis, character of natural soil deposits, earth pressure and retaining wall theory, stability of slopes and subgrades, foundation types and construction methods, and structural design of foundation elements. Three lecture hours.

Offered Fall Semester

GC 340—STATICS 3 credits
A comprehensive introduction to stress and force theories is presented as they apply to structural design. Particular emphasis is placed on developing the concepts of equilibrium, resultant forces, free body diagrams, and tension and compressed members that will be utilized in subsequent studies of beams and columns in Structures 1. Truss systems and their analysis are studied in depth. The various mechanical properties of engineering materials, such as modules of elasticity, ductility, thermal expansion rates, and factors of safety are studied in relationship to building construction. The concepts of center of gravity, centroids, and moments of inertia or regular and irregular bodies are explained and studied. Connecting members, including bolts, welds, and rivets are studied in respect to acceptable loadings and factors of safety. The weekly 3-hour lab is devoted to in-depth problem analysis

and solutions that expand and demonstrate the practical application of classroom theory. Two lecture hours and three lab hours each week. PREREQUISITE: MM 132.

Offered Fall Semester

GC 410—REINFORCED CONCRETE ANALYSIS 3 credits

A continuation of the stress and force theories from Statics as they apply to structural design using reinforced concrete. The course includes proportioning and specifying batch constituents, and the design of singly reinforced beams, slabs and foundation systems in accordance with the ACI Code and formwork considerations. Retaining walls are evaluated, and standard ASTM concrete tests are conducted by the students. Transporting, placing, and curing of concrete is discussed. The weekly 3-hour laboratory is devoted to design analysis, concrete testing, and preparation of design drawings. Two lecture hours and three laboratory hours. PREREQUISITE: GC 340.

Offered Spring Semester

GC 420—CONSTRUCTION MANAGEMENT 3 credits

A study of specialized business and management topics which are of particular interest to the construction industry. Topics include basic operational patterns, subcontracting procedures, purchasing and expediting, scheduling, change orders, accounting for materials and supplies, field labor methods, critical path method and legal matters. Three lecture hours.

Offered Spring Semester

GC 430—TRANSPORTATION ENGINEERING 3 credits

Highway design, layout, construction, foundations, and subgrades are discussed. Flexible and rigid pavements are included, and selected topics in airport design are covered. The weekly three-hour laboratory includes design, curve layout, and earthwork computations. Field surveying for baseline profiles, cross sectioning, slope stakes and curve layout is also included in the laboratory. Two lecture hours and three laboratory hours. PREREQUISITES: GC 310.

Offered Spring Semester

GC 440—STRUCTURES 1 3 credits

A continuation of the stress and force theories from Statics GC 340 is presented as they apply to structural design. The design of structural steel floor, beam, and column systems is studied in depth, with particular emphasis placed on shearing, bending, and deflection stresses induced on wood and steel loading carrying members. The weekly three-hour lab is devoted to practical design procedures and analysis of various structural members, especially beams, girders, columns, and footings through the solution of numerous problems. Two lecture hours and three lab hours. PREREQUISITE: GC 340.

Offered Spring Semester

GC 450—MATERIALS TESTING LAB 2 credits

Classroom theories of soil mechanics, structures, and reinforced concrete are expanded through material testing experiments using laboratory equipment. Lab procedures and test data analysis are required as part of the weekly lab reports. Extensive training is provided to prepare students for the Massachusetts Class "A" Concrete Field Technician's certification exam. In addition, field trips to major construction sites enable students to see current construction practices and techniques. PREREQUISITES: GC 320, GC 340.

Offered Spring Semester

Clerical Office Assistant
(*See* Office Administration)

Computer Information Systems/Data Processing

BD 099—COMPUTER LITERACY 3 credits

A low level introduction to computers for those who wish to become familiar with computers. The course will cover large and medium mainframe computers as well as micro-computers. Insight is provided into the history of computers and their function and role in society and education. The course also offers discussion of hardware, software, computer languages

and the use of computers in different professions along with sample applications and programs. PREREQUISITE: None.

Offered Fall & Spring Semester

BD 101— COMPUTER CONCEPTS 4 credits

This course provides the student with an understanding of computers and the role they play in today's society. The course covers in a general way the hardware and software which go into creating a computer system. The concepts of application programming are taught through the vehicle of BASIC, a procedural type of programming language. The student has an opportunity to design and write programs, then enter them into the college computer from Cathode Ray Tube terminals. PREREQUISITE: None.

Offered Fall & Spring Semester

BD 102—COMPUTER PROGRAMMING - R.P.G. 2 and 3 4 credits

Report Program Generator Levels Two and Three (R.P.G.) as applied to the computer is the main content of this course. This language is used on all business computers such as: IBM, Univac, Honeywell, Burroughs and NCR. Upon completion, the student will be able to write, assemble, and debug programs. Programs for billing, payroll, inventory control and accounts receivable will be written and tested using the Terminals in the Data Processing Laboratory. PREREQUISITE: BD 101.

Offered Fall & Spring Semester

BD 104—PROGRAMMING LOGIC 3 credits

Students will use the tools of the programmer to develop and test program specifications, VTOC's and detailed logic plans. Structured programs will be developed using flowcharts, HIPO charts, Nassi-Shneiderman charts and pseudo-code. The use of program building blocks and walkthroughs will be stressed. In other programming languages, students will spend more time developing and testing program logic and less time debugging programs. PREREQUISITE: None.

Offered Fall & Spring Semester

BD 105—COMPUTER PROGRAMMING - PASCAL 4 credits

PASCAL is one of the newer computer languages widely used in Europe. It is now becoming popular in this country mainly because it was specifically designed to incorporate the techniques of structured programming which are in great demand today. Students will be expected to design, code, debug, test and document PASCAL programs beginning with short and simple applications and continuing with those of increasing complexity. PREREQUISITE: None.

Offered Fall & Spring Semester

BD 107—BASIC 4 credits

This course is designed to teach the proper and correct ways to design and write programs in the BASIC Computer Language. Emphasis will be on using only the three logic control structures found in structured programming: the sequence logic structure, the if-then-else logic structure, and the looping logic structure. The concepts taught in the course include basic input/output operations, basic arithmetic operations, accumulating and printing totals, comparing, array processing, searching and sorting. In addition, string/file processing and report generation. COREQUISITES: BD 101, BD 104.

Offered Fall & Spring Semester

BD 111—DATA ENTRY SKILLS 2 credits

For this course, the student will be given a variety of data entry assignments which must be carried out in the Lab time. Many drills will be checked for speed and accuracy of entry. These drills will involve entering actual data through a variety of different means into the computer. The data will be used to create files, which will determine if the data was entered successfully.

Offered Fall & Spring Semester

BD 150—COMPUTER LITERACY AND BASIC PROGRAMMING 4 credits

The course objective is to provide the necessary knowledge to those individuals whose work environment requires a familiarity with computers and a knowledge of how to program in the BASIC language. It will provide the individual with the necessary skills to function in today's computerized society.

Offered Fall & Spring Semester

shearing, bending and deflection stresses induced on wood, steel, and aluminum load carrying members. The weekly 3-hour lab is devoted to practical design procedures and analysis of various structural members, especially beams, girders, columns, and footing through the solution of numerous problems. Two lecture hours and three lab hours. PREREQUISITE: GC 210.

Offered Fall Semester

GC 340—STATICS 3 credits

A comprehensive introduction to stress and force theories is presented as they apply to structural design. Particular emphasis is placed on developing the concepts of equilibrium, resultant forces, free body diagrams, and tension and compressed members that will be utilized in subsequent studies of beams and columns in Structures 1. Truss systems and their analysis are studied in depth. The various mechanical properties of engineering materials, such as modules of elasticity, ductility, thermal expansion rates, and factors of safety are studied in relationship to building construction. The concepts of center of gravity, centroids, and moments of inertia or regular and irregular bodies are explained and studied. Connecting members, including bolts, welds, and rivets are studied in respect to acceptable loadings and factors of safety. The weekly 3-hour lab is devoted to in-depth problem analysis and solutions that expand and demonstrate the practical application of classroom theory. Two lecture hours and three lab hours each week. PREREQUISITE: MM 132.

Offered Fall Semester

GC 410—REINFORCED CONCRETE ANALYSIS 3 credits

A continuation of the stress and force theories from Statics as they apply to structural design using reinforced concrete. The course includes proportioning and specifying batch constituents, and the design of singly reinforced beams, slabs and foundation systems in accordance with the ACI Code and formwork considerations. Retaining walls are evaluated, and standard ASTM concrete tests are conducted by the students. Transporting, placing, and curing of concrete is discussed. The weekly 3-hour laboratory is devoted to design analysis, concrete testing, and preparation of design drawings. Two lecture hours and three laboratory hours. PREREQUISITE: GC 340.

Offered Spring Semester

GC 420—CONSTRUCTION MANAGEMENT 3 credits

A study of specialized business and management topics which are of particular interest to the construction industry. Topics include basic operational patterns, subcontracting procedures, purchasing and expediting, scheduling, change orders, accounting for materials and supplies, field labor methods, critical path method and legal matters. Three lecture hours.

Offered Spring Semester

GC 430—TRANSPORTATION ENGINEERING 3 credits

Highway design, layout, construction, foundations, and subgrades are discussed. Flexible and rigid pavements are included, and selected topics in airport design are covered. The weekly three-hour laboratory includes design, curve layout, and earthwork computations. Field surveying for baseline profiles, cross sectioning, slope stakes and curve layout is also included in the laboratory. Two lecture hours and three laboratory hours. PREREQUISITES: GC 310.

Offered Spring Semester

GC 440—STRUCTURES 1 3 credits

A continuation of the stress and force theories from Statics GC 340 is presented as they apply to structural design. The design of structural steel floor, beam, and column systems is studied in depth, with particular emphasis placed on shearing, bending, and deflection stresses induced on wood and steel loading carrying members. The weekly three-hour lab is devoted to practical design procedures and analysis of various structural members, especially beams, girders, columns, and footings through the solution of numerous problems. Two lecture hours and three lab hours. PREREQUISITE: GC 340.

Offered Spring Semester

GC 450—MATERIALS TESTING LAB 2 credits

Classroom theory of soil mechanics and strength of materials is expanded through material testing experiments using laboratory equipment. In addition, field trips to major construction sites enable students to see current construction practices and techniques. One lecture and two laboratory hours.

Offered Spring Semester

Clerical Office Assistant
(*See* Office Administration)

Computer Information Systems/Data Processing

BD 099—COMPUTER LITERACY 3 credits
A low level introduction to computers for those who wish to become familiar with computers. The course will cover large and medium mainframe computers as well as micro-computers. Insight is provided into the history of computers and their function and role in society and education. The course also offers discussion of hardware, software, computer languages and the use of computers in different professions along with sample applications and programs. PREREQUISITE: None.

Offered Fall & Spring Semester

BD 101— COMPUTER CONCEPTS 4 credits
This course provides the student with an understanding of computers and the role they play in today's society. The course covers in a general way the hardware and software which go into creating a computer system. The concepts of application programming are taught through the vehicle of BASIC, a procedural type of programming language. The student has an opportunity to design and write programs, then enter them into the college computer from Cathode Ray Tube terminals. PREREQUISITE: None.

Offered Fall & Spring Semester

BD 102—COMPUTER PROGRAMMING - R.P.G. 2 and 3 4 credits
Report Program Generator Levels Two and Three (R.P.G.) as applied to the computer is the main content of this course. This language is used on all business computers such as: IBM, Univac, Honeywell, Burroughs and NCR. Upon completion, the student will be able to write, assemble, and debug programs. Programs for billing, payroll, inventory control and accounts receivable will be written and tested using the Terminals in the Data Processing Laboratory. PREREQUISITE: BD 101.

Offered Fall & Spring Semester

BD 104—PROGRAMMING LOGIC 3 credits
Students will use the tools of the programmer to develop and test program specifications, VTOC's and detailed logic plans. Structured programs will be developed using flowcharts, HIPO charts, Nassi-Shneiderman charts and pseudo-code. The use of program building blocks and walkthroughs will be stressed. In other programming languages, students will spend more time developing and testing program logic and less time debugging programs. PREREQUISITE: None.

Offered Fall & Spring Semester

BD 105—COMPUTER PROGRAMMING - PASCAL 4 credits
PASCAL is one of the newer computer languages widely used in Europe. It is now becoming popular in this country mainly because it was specifically designed to incorporate the techniques of structured programming which are in great demand today. Students will be expected to design, code, debug, test and document PASCAL programs beginning with short and simple applications and continuing with those of increasing complexity. PREREQUISITE: None.

Offered Fall & Spring Semester

BD 107—BASIC 4 credits
This course is designed to teach the proper and correct ways to design and write programs in the BASIC Computer Language. Emphasis will be on using only the three logic control structures found in structured programming: the sequence logic structure, the if-then-else logic structure, and the looping logic structure. The concepts taught in the course include basic input/output operations, basic arithmetic operations, accumulating and printing totals, comparing, array processing, searching and sorting. In addition, string/file processing and report generation. COREQUISITES: BD 101, BD 104.

Offered Fall & Spring Semester

programs which are called by programs written in other languages. PREREQUISITES: BD 101 and BD 305.

Offered Fall & Spring Semester

BD 410—SYSTEMS ANALYSIS & DESIGN 2 3 credits

The students will develop special business systems including the necessary computer programs. Course flexibility is utilized to meet current demands of the computer industry and its changing techniques. PREREQUISITES: BD 101 and BD 302.

Offered Fall & Spring Semester

Computer Maintenance Technology

ED 240—INTRODUCTION TO COMPUTER ORGANIZATION AND PROGRAMMING 2 credits

This course will introduce the student to the organization of modern day computers. The coverage will include computer data representation, survey of peripherals, and more programming with high level languages. The course will consist of both class and laboratory where the student will use the computer to solve problems related to the second semester work.

Offered Fall Semester

ED 330—MACHINE & ASSEMBLY LANGUAGE PROGRAMMING 3 credits

The study of data representation and low-level programming for computer systems. The course involves programming 6502 eight-bit processors as well as 8088 and 68000 sixteen-bit processors. Topics include computer instruction sets, addressing modes, arithmetic operations, program structures, assemblers and linkers, input/output, and real-time programming. Senior standing. PREREQUISITE: ED 240 or some programming experience and consent of the instructor.

Offered Fall Semester

ED 350—DIGITAL ELECTRONICS LAB 2 credits

This is a third semester course in the Computer Maintenance and Microprocessing Technology curriculum. The course deals with the practical aspects of logic system design and construction. Also covered are logic circuits, including gates, flip flop timers, registers and counters. Students will construct and troubleshoot circuits and write lab reports dealing with the concepts discussed in ET 340 or ED 240. PREREQUISITE: Senior standing in Computer Maintenance or Microprocessing Technology.

Offered Fall Semester

ED 410—ADVANCED DIGITAL ELECTRONICS LAB 2 credits

This course is a continuation of ED 350 Digital Electronics Lab. The course deals with advanced logic systems concepts including arithmetic units, A/D and D/A converters, digital displays, microprocessor systems and interfacing microcomputer components. Students may build and program an 8085 or 8088 based microcomputer system. PREREQUISITES: All third semester Computer Maintenance courses. Senior standing & ED 350. CO-REQUISITE: Microprocessor Theory, ED 420, for Computer Maintenance Technology students, or permission of instructor.

Offered Spring Semester

ED 420—MICROPROCESSOR THEORY 3 credits

The microprocessor in digital control systems, the substitution of software for hardware in logic design and the interface of the microprocessor with external devices. Architectural features of current microprocessors such as the Intel 8085, 8088, and 8086 or the Motorola 68000 will be examined and a study of the device's applications will be undertaken. PREREQUISITES: Senior standing and ED 330, ED 350, and ET 340.

Offered Spring Semester

ED 450 —ADVANCED COMPUTER TOPICS 3 credits

This course studies the structure of large computer systems. Topics include microprogramming, paging, operating systems, and I/O systems for several different computers. Previous programming experience will be extended to include MC68000 and other systems. PREREQUISITES: Senior standing and ED 330, ED 350 and ET 340.

Offered Spring Semester

Computer Science Transfer Option to Engineering & Science Transfer

MK 103—INTRODUCTION TO COMPUTER PROGRAMMING 4 credits
The course provides a general understanding of the hardware and software which go into a computer system. Methods of problem solving and algorithm development will be discussed, using a modern computer language. The accepted techniques of structured programming in software design will be stressed. Extensive hands-on computer use involving program design, coding, entry, and debugging will be required.

MK 203—NON-NUMERICAL PROCESSING - PASCAL 4 credits
The details of the PASCAL language are developed. The principles of good programming style and structure are stressed. Among the individual topics to be developed are: the theory of recursion, stack variable storage, dynamic variables, simple data structures such as linked lists, stacks, and queues, elementary string processing techniques, and internal searching/sort algorithms. PREREQUISITE: MK 103.

MK 310—MACHINE AND ASSEMBLY LANGUAGE 4 credits
A study of data representation, instruction sets, and functional units found in typical computers is offered. The focus of study is on the VAX-11 processor and the VAX-11 MACRO Assembler. Topics to be discussed include: number systems, register configuration, instruction sets, addressing modes, arithmetic operations, operations on data structures, and interrupt processing. The theory of macros, assemblers, program segmentation, and linkage will also be discussed. PREREQUISITES: MK 103 or ME 103, and MK 203 or ME 206

MK 320—COMPUTER ORGANIZATION & DIGITAL LOGIC 3 credits
Introduction to the analysis and design of combinational and sequential logic using Boolean algebra, Karnaugh Maps, and register transfer techniques. Logic design with integrated circuits. Flip-flops, registers, memory, and input/output devices are among the devices to be discussed. PREREQUISITE: MK 103; COREQUISITE: MK 310.

MK 401— DATA STRUCTURES AND ALGORITHMS 4 credits
Analysis of algorithms that manipulate information organized in structures such as lists, trees, and graphs. Simple, circular, multilinked linked lists. Stacks and queues. Balancing algorithms for tree structures. Advanced search/sort techniques, hashing methods. Database management system design using the techniques discussed. PREREQUISITE: MK 203.

Cosmetology

AC 100—BEAUTY SALON MANAGEMENT 3 credits
A basic course dealing with the fundamental principles and techniques underlying the managerial process in small business management. Topic includes: The Massachusetts Board of Cosmetology rules and regulations, marketing, advertising, record keeping, merchandise control, salon practices, telephone techniques, personnel management and business ethics. Case studies are a part of the course.

Offered Fall Semester

AC 101—COSMETOLOGY 1 3 credits
The cosmetologist must know how the body is constructed as a basis for the application and understanding of her/his art. This course includes the study of cells, bones, muscles, nerves, circulatory system, bacteriology, sterilization, sanitation, skin, hair, nails, and the theory of shampoos, rinses, scalp and hair conditions, hair coloring, cold waving, hair relaxing, thermal waving, arching, manicuring and massaging.

Offered Fall Semester

AC 109—APPLIED COSMETOLOGY 1 4 credits
During the first semester the student learns the techniques and procedures of scalp treatments, wigs, shampooing, finger-waving, pin curling, and hairstyling together with thermal irons and chemical relaxing, as outlined by the Massachusetts Board of Registration of Cosmetologists. Mannequin heads are used for practice work. A passing grade of "C" is required to qualify for course AC 209.

Offered Fall Semester

AC 110—APPLIED COSMETOLOGY 2 4 credits
Another phase of work that requires the knowledge of techniques and procedures includes hair cutting, hair coloring, and permanent waving. From the beginning, students practice on mannequin heads. Later on, students are encouraged to work on each other to become familiar with the different hair textures and conditions. A passing grade of "C" is required in this course to qualify for AC 210.
Offered Fall Semester

AC 111—AESTHETICS 1 2 credits
This course is designed to teach the basic techniques and procedures of manicuring, facials, makeup application, eyebrow arching, and waxing. The student learns to use some of the elements of science in his/her practical work to develop judgment in the use of tools, equipment, and materials and to take precautions to safeguard his/her own health and that of patrons through sanitation and sterilization. A passing grade of "C" is required to qualify for AC 212. *Offered Fall Semester*

AC 200—BASIC DERMATOLOGY 3 credits
An introduction of cosmetic chemistry relating to skin, hair, and nails is necessary in manicuring, facials and makeup. Basic scientific principles of biological, environmental and chemical effects on hair and skin are mastered. The student gains basic knowledge in recognizing disorders, diseases and abnormalities of the nails, skin, scalp and hair. A review of anatomy and physiology in preparation for the national examination in cosmetology is studied.
Offered Spring Semester

AC 209—APPLIED COSMETOLOGY 3 4 credits
This course is a continuation of AC 109. Practical experience is gained as a result of students working on each other and on patrons, practicing the techniques learned during the first semester. A passing grade of "C" is required for graduation. PREREQUISITE: AC 109
Offered Spring Semester

AC 210—APPLIED COSMETOLOGY 4 4 credits
This course is a continuation of AC 110. The student will gain experience in hair coloring, permanent waving, chemical hair relaxing, and hair cutting by working on patrons under close supervision of a licensed instructor. A passing grade of "C" is required for graduation. PREREQUISITE: AC 110 *Offered Spring Semester*

AC 211—COSMETOLOGY 2 3 credits
The theory of hair color and chemical hair relaxing are an extension of AC 101. A basic concept of chemistry, learning the chemical composition of hair and products, and electricity and light therapy are taught in this course. PREREQUISITE: AC 101
Offered Spring Semester

AC 212—AESTHETICS 2 2 credits
This course is a continuation of AC 111. The student learns in-depth skin analysis of the various types of facials for the different skin conditions. Practical experience is gained by working closely under the supervision of a licensed aesthetician, giving facials, and doing makeup, eyebrow arching, and manicuring. A passing grade of "C" is required for graduation. PREREQUISITE: AC 111 *Offered Spring Semester*

Court Reporting
(*See* Office Administration)

Criminal Justice
(*See* Law Enforcement/Criminal Justice)

Data Processing
(*See* Computer Information Systems/Data Processing)

Dental Assistant

AD 100—DENTAL ASSISTANT TECHNIQUES 1 3 credits
This course is primarily designed to educate the student in the proper identification, care and use of all types of dental equipment and instruments. As the student progresses, he/she will have a working knowledge of tray set-ups and instrument sequencing for each dental

procedure to enable the student to utilize 4-handed chairside assisting effectively. Aseptic techniques, including an understanding of the principles of microbiology and sterilization are emphasized in this introductory course. In addition, dental terminology and charting procedures will be discussed.

Offered Fall Semester

AD 102—ORAL ANATOMY 2 credits

Study of the anatomy, embryology and histology of oral structures with emphasis on deciduous and permanent dentitions including morphology, eruption, function and occlusions.

Offered Fall Semester

AD 103—DENTAL RADIOLOGY 1 3 credits

This course is primarily designed to afford the student an opportunity to integrate the theoretical as well as the practical application of exposing, processing, mounting and interpreting full-mouth and bite-wing radiographs through the use of the bisecting and paralleling techniques. These goals are achieved through the utilization of simulated exercises and clinical practice which will aid the student in developing radiographic expertise. In addition, panoramic radiography will be discussed.

Offered Fall Semester

AD 104—DENTAL MATERIALS 1 4 credits

The chemical, physical and manipulative properties of common materials used in dentistry are studied. Attempt is made to correlate the major specialities in dentistry. The role of the dental auxiliary in the manipulation and application of these materials is stressed.

Offered Fall Semester

AD 105—DENTAL SCIENCES 1 2 credits

This course is primarily designed to educate the student in all phases of diet, nutrition, and oral health. It is intended to famliarize the student with basic nutritional deficiencies and oral manifestations that the patient may experience as a result of his/her dietary habits. Also covered in the course are the principles of nutritional counseling. As the student progresses, he/she will have a working knowledge of the techniques of counseling patients according to their specific dietary and oral health needs. In addition, the various techniques of oral physiotherapy will be discussed.

Offered Fall Semester

AD 200—DENTAL ASSISTANT TECHNIQUES 2 3 credits

A continuation of first semester, this course seeks to advance the skill and dexterity of the student in all techniques. There is a coordination of activities in an effort to combine efficient chairside performance with general dental assisting tasks. Additionally, this course is designed to enhance the student's awareness of various employment opportunities that will be available upon graduation. To accomplish this goal, the student will pursue an in-depth study of the numerous dental specialties, including Periodontics, Orthodontics, Oral Surgery, and Endodontics, to name a few. With this knowledge, the student should be able to integrate effectively the theory of dental assisting with the practical application of all procedures. In order to educate the student as to his/her legal responsibilities to the dentist, the patient, and ultimately to the field of dental assisting, the student will also receive lectures on ethics and jurisprudence as they pertain to the practice of dentistry.

Offered Spring Semester

AD 201—DENTAL SCIENCES 2 3 credits

This course is designed to familiarize the student with the various tissue changes that may occur in the patient's oral cavity as a result of pathological and/or systematic conditions. Also included will be a study of medical emergencies and their respective first-aid treatment procedures. Specific types of pharmacological agents that are utilized in the dental office in order to alleviate pain, fear or enhance anesthesia as well as those agents which are prescribed to the patient to control systematic disease will be discussed. The student will be required to enroll in and pass a Certified Cardiopulmonary Resuscitation course which will be offered in conjunction with this area of study.

Offered Spring Semester

AD 202—DENTAL RECORDS 2 credits

This course is primarily designed for the dental assistant. Included will be basic business procedures which are essential to the effective management and control of the dental office. Business skills are reviewed and developed for practical application in the office. In addition,

procedures in filing, banking, billing, managing the appointment book, organizing a preventive recall system, insurance, tax forms, and all types of financial transaction which might be found in the dental practice will be explored.

Offered Spring Semester

AD 203—DENTAL RADIOLOGY 2 1 credit

A continuation of the first semester, this laboratory course enables the student to further enhance his/her skills in the techniques of radiographs through the utilization of the bisecting and paralleling techniques. These goals are achieved through the use of simulated exercises and clinical practice on patients which will aid the student in developing radiographic expertise within the dental office.

Offered Spring Semester

AD 204—CLINICAL AFFILIATION 5 credits

Since the College does not have a dental school with which to affiliate, this portion of the student's training is accomplished through the continued interest and cooperation of our area dental society. At this time, the student should be able to expand his/her dental assisting education and to improve his/her chairside skills under the direct supervision of dentists and auxiliary personnel.

Offered Spring Semester

Dental Hygiene

AH 101—CLINICAL PRACTICE 1 4 credits

Lectures and preclinical laboratory sessions are presented to introduce the etiology and prevention of dental diseases, normal oral conditions and common deviations, theory and practice in specific clinical techniques in the practice of dental hygiene. Students must pass both laboratory and theoretical components of the course in order to continue in the program.

Offered Fall Semester

AH 103—ORAL ANATOMY 1 2 credits

This course is designed to familiarize the dental hygiene student with the anatomical components and functions of the teeth and supporting structures. Soft tissue landmarks of the oral cavity, dental terminology, and occlusion will be studied.

Offered Fall Semester

AH 104—DENTAL RADIOLOGY 3 credits

An introductory course in dental radiology, including theoretical concepts of the characteristics of radiation, the dental x-ray machine, effects of radiation exposure, radiation protection, image receptors and their processing, dental radiographic anatomy, and intra-oral radiographic procedures.

Offered Fall Semester

AH 200—NUTRITION 2 credits

The basic principles of concepts of nutrition are studied with emphasis on their relation to oral health, caries control, and one's overall general health. An orientation to counseling techniques for diet modification in the practice of preventive dentistry will be covered. PREREQUISITE: MB 140.

Offered Spring Semester

AH 201—ORAL PATHOLOGY 2 credits

Introduction to the basic principles of disease pertaining to the head and oral structures will provide the background for recognition of such diseases within the scope of the dental hygienist's practice and responsibility.

Offered Spring Semester

AH 202—CLINICAL PRACTICE 2 5 credits

A continuation of Clinical Practice 1 with supervised clinical experience. The student will be introduced to advanced dental hygiene theory with special oral or general health problems. The student will be assisted to develop mental processes necessary to collect and analyze patient problems and thereby render quality dental hygiene services. Students must pass both the clinical and theoretical components of the course in order to continue in the program. PREREQUISITES: AH 101, AH 103, AH 104.

Offered Spring Semester

AH 203— ORAL ANATOMY 2 2 credits
A continuation of Oral Anatomy AH 103 with emphasis on the embryology and histology of the maxillofacial area and dental structures. Attention will be given to skeletal structure, muscle function, blood supply, and innervation of the maxillofacial region. PREREQUISITES: AH 103, MB 132.

Offered Spring Semester

AH 300—PERIODONTOLOGY 2 credits
This course will explore the pathogenesis, diagnosis, and treatment of periodontal disease. Emphasis will be given to the microbiological progression of periodontal disease, host response, diagnostic methods, treatment philosophies, treatment modalities, and the role of the dental hygienist in the treatment and prevention of periodontal disease.

Offered Fall Semester

AH 301—DENTAL MATERIALS 1 3 credits
This course is designed to familiarize the dental hygiene student with knowledge of the various dental materials placed in and around the oral environment. Focus will be placed on the composition, chemistry, clinical properties, mixing techniques, advantages, disadvantages, and setting times of the more common materials utilized in the dental setting. The role of the dental auxiliary in the manipulation and application of these materials is stressed. Students must pass both the clinical and theoretical components of the course in order to continue in the program.

Offered Fall Semester

AH 302—PHARMACOLOGY 2 credits
Study of drugs and their effects on living tissues. Emphasis will be placed on the drugs which are utilized in dentistry. Dosage, physical and chemical properties and modes of administration will be considered. PREREQUISITES: MB 140, AH 203.

Offered Fall Semester

AH 303—CLINICAL PRACTICE 3 6 credits
A course designed to enhance the comprehension of dental hygiene services and to apply basic sciences to the practice of dental hygiene. The students will learn to expand upon their basic skills in areas such as radiographic interpretation, restoration, recontouring, and polishing, recognition and charting of periodontal diseases, patient motivation, advanced hand implementation, and various sharpening techniques. The application of the theoretical background to the clinical techniques will enable the student to provide better total patient care. Students must pass both the theoretical and clinical components of the course in order to continue in the program. PREREQUISITE: AH 202.

Offered Fall Semester

AH 400—COMMUNITY DENTAL HEALTH 3 credits
A series of lectures and a field project designed to introduce the student to the dental need and demand of the community. Students propose, plan, and participate in a community dental service project which is designed to assist a community organization with dental health education, epidemiology, dental public health, fluoridation, and provision of dental care.

Offered Spring Semester

AH 401—CLINICAL PRACTICE 4 6 credits
A course designed to provide students with the theoretical background needed to perform advanced clinical procedures to function as a respected member of the oral health team in any dental practice setting, and to utilize higher level thinking to make decisions regarding patient care. Emphasis is placed on periodical therapy for dental hygienists, ethics, and jurisprudence in dentistry, application for employment, third party systems, appointment control and recall systems. Simulation exercises, role playing, reading and research in the field will enable the dental hygiene students to discover their personal ethics and values in dentistry so that they will be able to handle most situations in the dental environment. Students must pass both clinical and theoretical components of the course in order to continue the program. PREREQUISITE: AH 303.

Offered Spring Semester

AH 402—APPLIED DENTAL AUXILIARY SKILLS 2 credits
This introductory course is designed to provide the dental hygiene student with an overall view of the various duties that may be within the performance realm of the dental hygienist. The course will provide the background information and introduce basic techniques to perform

a wide variety of functions. Emphasis will be placed on those duties that are currently accepted within the state practice laws including rubber dam application, placement and removal of periodontal dressings, suture removal, placement of temporary restorations and application of sealants.

Offered Spring Semester

Developmental English
(*See* English)

Drafting Technology

GD 110-GD 240—PROGRAMMED ENGINEERING GRAPHICS

Offered Fall & Spring Semester

GD 110—MODULE 1 1 credit
Instruments and their use, applied geometry, orthographic drawing and sketching.

GD 120—MODULE 2 1 credit
Lettering, auxiliaries: normal and edge views, sections and conventions.

GD 130—MODULE 3 1 credit
Intersections and developments, drawings and the shop working drawings.

GD 140—MODULE 4 1 credit
Dimensions, notelimits, catalogs.

GD 150—MODULE 5 1 credit
Introduction, electricity and batteries, schematics, assembly-disassembly.

GD 210—MODULE 6 1 credit
Power distribution graphics: Electrical drafting, contractor drawings.

GD 220—MODULE 7 1 credit
Electronics graphics: Electrical (Electronic Drafting), system design, special equipment.

GD 230—MODULE 8 1 credit
Architectural graphics: Oblique drawings, drawing of structures, graphical vendor analysis.

GD 240—MODULE 9 1 credit
Perspective drawings, shapes and shadows, presentation drawings.

GD 260—GRAPHICS DESIGN LAB 2 credits
The student will have the opportunity to put together all his knowledge obtained on various projects assigned by the instructor. He will do the design and rectify by calculations and computations in relationship to this along with the economical aspects.

Offered Spring Semester

Drafting and Design Technology
Option to Mechanical Technology

FD 110—DRAFTING & DESIGN 1 4 credits
Principles of drafting to include orthographic projection, dimensioning, sectioning, auxiliary views, pictorial drawing, detailing of parts. PREREQUISITE: High School Algebra. *Offered Fall Semester*

FD 210—DRAFTING & DESIGN 2 4 credits
Detailing from layout drawings, assemblies, fits and tolerances, mechanical components and systems, design and working drawings. PREREQUISITE: FD 110.

Offered Spring Semester

FD 220—MECHANICS 4 credits
A basic course studying forces, how they act and are resolved for equilibrium conditions. Moments are determined in relation to a point. Frictional forces and their effects are also studied along with trusses, centroids and moments of inertia.

Offered Spring Semester

FD 230—KINEMATICS 3 credits
The theory of linkages, cams, gears, belt and pulley drives is studied. Calculations of velocities, acceleration and speed of the various components are determined relative to the design concept being studied. *Offered Spring Semester*

FD 310—DRAFTING & DESIGN 3 4 credits
Machine Design principles are studied and methods of calculating the required size and shape of various machine parts are developed. Selection of proper material is given consideration, stress, strain, design stresses, keys and fasteners, threaded members, welded and riveted connections and shafts are considered. The principles of motions, velocities, accelerations of various linkages are considered. PREREQUISITE: FD 210. *Offered Fall Semester*

FD 320—DESIGN OF MACHINE ELEMENTS 4 credits
This course is a continuation of study of strength of materials. Stress concentration factors, endurance, fatigue are determined in relationship to springs, couplings, drive gears and bearings. Calculations are made for the proper design and selection in relationship to machinery. *Offered Fall Semester*

FD 410—DRAFTING & DESIGN 4 4 credits
The course involves the study of disk and cylindrical cams, gears, gear trains, pulleys and couplings. Interference, contact ratio, strength and dynamic loading of gears are considered and simple reverted, compound and epicyclic gear trains are worked out in detail. The student is given the opportunity to integrate knowledge acquired during the machine design program by carrying out projects in which he designs complete machines or subassemblies. He is required to analyze the problem, gather pertinent information, carry out the necessary mathematical operations, make working drawings and check his work. Throughout the course, he is encouraged to use his own judgment and initiative to the maximum extent possible. Students meet for two one-hour lectures and two three-hour labs per week. PREREQUISITE: FD 310. *Offered Spring Semester*

FD 450—PROJECT DESIGN LAB 2 credits
The student will have the opportunity to put together all his knowledge obtained on various projects assigned by the instructor. He will do the design and rectify by calculations and computations in relationship to this along with the economical aspects. PREREQUISITE: FD 310. *Offered Spring Semester*

Early Childhood Education

NC 100—INTRO. TO EARLY CHILDHOOD EDUCATION 3 credits
Introduction to Early Childhood Education is designed to acquaint the student with the philosophy, history and methodology of early learning programs. Within the scope of the course, the students will study the general components of a good early learning program, techniques for improving learning, problems of educational environments, parent involvement and the role of the teacher.

Offered Fall Semester

NC 110—CHILD GROWTH AND DEVELOPMENT 3 credits
Provides the student with basic theories and research in growth and development. The course covers study of the individual from conception through early elementary school years in the areas of physical, emotional, social, cognitive, linguistic and personality development.
Offered Fall Semester

NC 120—EARLY CHILDHOOD FIELD WORK 1 1 credit
Supervised field placements in community agencies and schools during Fall semester of the freshman year in the Early Childhood Education Program.

Offered Fall Semester

NC 200—CURRICULUM FOR OPEN EDUCATION 1 4 credits
Provides the student with integrated experiences in applied early learning through lecture, discussion and workshops in movement, dramatics, art, science and math. Students are helped to discover their own creative resources. PREREQUISITE: NC 100.
Offered Spring Semester

NC 210—THEORIES OF LEARNING & PERSONALITY DEVELOPMENT 3 credits
Provides an examination of the cognitive and affective theories of Jean Piaget and Erik Erikson. Also studied are issues in contemporary learning and education. PREREQUISITES: NC 110; NP 100.

Offered Spring Semester

NC 220—EARLY CHILDHOOD FIELD WORK 2 2 credits
Supervised field placements in community agencies and schools during Spring semester of the freshman year in the Early Childhood Education Program.

Offered Spring Semester

NC 250—YOUNG CHILDREN AND BOOKS 3 credits
This course provides the student with a study of the rich and dazzling world of literature for young children, focusing on picture books where art and literature blend into an aesthetic whole. Course content will include types of books, types of illustrations, techniques of presentation, reviews of children's authors, previews of audiovisual materials based on books, and methods of eliciting children's responses to literature.

NC 300—CURRICULUM FOR OPEN EDUCATION 2 4 credits
Provides the student with integrated experience in applied early learning through lecture, discussion and workshops in literature, story-telling, language development, reading, and the techniques and uses of audio-visual aids as they enrich the integrated curriculum. The role of the adult in providing early learning experiences that foster self-directiveness and self-expressiveness in children is emphasized. PREREQUISITES: NC 100 and NC 200.

Offered Fall Semester

NC 310—SURVEY OF CURRENT EARLY LEARNING PROGRAMS 3 credits
Offers the student a survey of current programs in the field of early learning and examines their underlying rationale. Emphasis is placed on an eclectic approach to select the appropriate aspects of each program to meet the developmental needs of individual children. PREREQUISITES: NC 100, NC 110 and NC 210.

Offered Fall Semester

NC 315—OBSERVATION & RECORDING OF CHILD BEHAVIOR SEMINAR 1 credit

NC 320—OBSERVATION & RECORDING FIELD STUDY 3 credits
Provides the student with an opportunity to increase objectivity and proficiency in observing and interpreting children's behavior. Seminar will comprise 25% of credit time and 75% will be spent in field placements. PREREQUISITES: NC 200, NC 210.

Offered Fall Semester

NC 400—SUPERVISED STUDENT PRACTICUM 6 credits
Supervised field experience in selected facilities planned in cooperation with community agencies and schools. Placements are for eighteen hours per week. The Practicum is taken in conjunction with Seminar and Critique, NC 420. PREREQUISITES: NC 100 and NC 315 inclusive.

Offered Spring Semester

NC 420—SEMINAR AND CRITIQUE 3 credits
Provides for systematic evaluation of the total program as it relates to the individual student. Research and discussion center on methods, materials, and content of early learning and include the role and responsibilities of professional and semi-professional personnel. Experiences encountered in student practicum placements are the basis for discussion. Taken simultaneously with NC 400. PREREQUISITES: NC 100 and NC 315 inclusive.

Offered Spring Semester

NC 450—CHILD HEALTH, NUTRITION & SAFETY 3 credits
Provides the student with basic information pertaining to nutritional value of food and the relationship of food habits to the health and education of young children, childhood diseases, preventive procedures, the syndrome of child abuse and various community agencies working with children and families. A standard First Aid certificate will also be earned. PREREQUISITES: NC 100, NC 120.

Offered Spring Semester

Economics

NE 100—PRINCIPLES OF ECONOMICS 1 3 credits
This course is primarily concerned with macroeconomics and aims at developing an understanding of American economic institutions and the economic problems of inflation, unemployment and economic growth. Emphasis is given to the principal tool of economists, the market model of demand and supply. The effects of both fiscal and monetary policies on the major problems of the economy are thoroughly explored. PREREQUISITE: NONE.
Offered Fall & Spring Semester

NE 200—PRINCIPLES OF ECONOMICS 2 3 credits
This course is the sequential course to Principles of Economics 1 NE 100 and is primarily concerned with Microeconomics. Microeconomics deals with the subsystems of the economy such as the economics of the firm and the industry. The major emphasis is on a thorough analysis of supply and demand and of the four market structures. The theories and concepts are then applied to such relevant topics as poverty, ecology, and population growth. PREREQUISITES: NE 100.
Offered Fall & Spring Semester

NE 300— CURRENT ECONOMIC PROBLEMS 3 credits
A course designed to acquaint the student with several of the more important problems of our economy such as economic growth, unemployment, consumer credit, cost of air pollution and population explosion.
Offered Fall & Spring Semester

NE 310—COMPARATIVE ECONOMIC SYSTEMS 3 credits
This course considers an analysis of today's major economic systems, such as the American modified market economy, the mixed economies of Western Europe, France, Germany, United Kingdom and the command economies of the Soviet Union and the Peoples Republic of China. PREREQUISITE: NC 100.
Offered Spring Semester

NE 320—DEVELOPMENT ECONOMICS SEMINAR 3 credits
This seminar will survey various economic growth models with focus on the theories and issues of development economics as they apply to the real world economic situations in the Third World. The organizational structures and strategies designed to cope with issues and problems of economic development in the Third World will be analyzed. There will be an in-depth study done on the basis of selected countries in the Third World. PREREQUISITE: NE 100.
Offered Spring Semester

Electrical Technology

EE 110—BASIC ELECTRICITY 1 3 credits
Course dealing with the basic theories and concepts essential to the practical understanding of all phases of electricity and electronics. It treats fully the nature of electricity and magnetism, including an exposition of the electron theory as it relates to electricity. Consideration is given to Ohm's Law, and to associated circuits, batteries, induced E.M.F., magnetic circuits, DC measuring instruments, motors and generators.
Offered Fall Semester

EE 120—ENGINEERING GRAPHICS 311 2 credits
This course prepares a person to take a component part and present it in accordance with graphic language. This part must then be utilized with other parts graphically. All research necessary for the parts, hardware and software must be included. The student's concurrent electrical knowledge is utilized in graphic and symbolic form for electrical circuitry and construction techniques. This is carried on to the degree that as he establishes his future electrical knowledge, he can easily implement his graphic knowledge expansion. Standards of the industry are introduced continuously at the appropriate time for different phases of the art.
Offered Fall Semester

EE 210—BASIC ELECTRICITY 2 3 credits
Understanding of the basic electrical and electronic principles of DC circuits extended to include the more complex area of AC circuits. Generation, vector representation and algebraic manipulation of the sine wave, inductance, capacitance, resonance and Ohm's Law for alternating current circuits are studied. Practical methods of measuring inductance, capacitance and impedance are discussed along with AC and DC bridge circuits. Included also are the rudiments of complex-wave formation and analysis. In the laboratory, the student will perform experiments confirming theory and will be given experience and training in the repair of AC equipment.

Offered Spring Semester

EE 220—FUNDAMENTALS OF ELECTRONICS 311 4 credits
The principles and properties of solid-state devices are discussed in detail. Demonstration time is given for the student to observe construction methods, device operation and solid state reaction phenomenon.

Offered Spring Semester

EE 310—ELECTRICAL CONTROL FOR MACHINES 3 credits
Electrical motor control design, maintenance and troubleshooting are studied with the emphasis being on troubleshooting. The laboratory experiments are real circuits, making each exercise a unique experience. PREREQUISITES: EE 110, EE 210, and EE 220.

Offered Fall Semester

EE 320—INDUSTRIAL ELECTRONIC CIRCUITS 1 3 credits
This course deals with the fundamental circuits and components most frequently found in industrial electronic equipment. The basic circuit of a complete electronic control system and the characteristics of the component parts of each circuit are studied. Emphasis is placed on the characteristics of solid state devices and sensing elements. The laboratory section of the course is designed to verify by means of experiments the characteristics of the components and circuits used in industrial electronics. It is intended to develop an understanding of those circuit construction practices and testing techniques common to the field. PREREQUISITES: EE 110, 220, 210.

Offered Fall Semester

EE 330—SEMICONDUCTORS & TRANSISTORS 1 3 credits
The principles and electrical properties of semiconductor diodes and transistors are studied. Special emphasis is placed upon the uses of semiconductor devices in rectifiers, amplifiers, oscillators and special circuits. The accompanying laboratory work enables the student to measure the properties of these devices and to verify their operating principles and uses in actual circuits. PREREQUISITES: EE 110, 220, 210.

Offered Fall Semester

EE 391—FUNDAMENTALS OF POWER CIRCUITS 1 3 credits
The classes will be geared to industrial AC and DC power equipment. This will include DC motors, DC generators, single phase AC motors and single phase AC generators. Other topics to be covered will be power factor and power factor correction problems. PREREQUISITES: EE 110, EE 210, EE 310, EE 330, EE 320.

Offered Continuing Education

EE 410—INDUSTRIAL ELECTRONIC CIRCUITS 2 3 credits
This course is a continuation of Industrial Electronic Circuits. The emphasis is now on systems employing the solid state devices covered in Electronic Circuits 1. PREREQUISITES: EE 320.

Offered Spring Semester

EE 430—SEMICONDUCTORS & TRANSISTORS 2 3 credits
A study of the circuitry and design of semi-conductor devices commonly used in industry. Among the topics covered are servo controls, switching networks, regular circuits and special amplifiers. The nature and design of these circuits are analyzed using the latest components available. PREREQUISITES: EE 220, 210, 330.

Offered Spring Semester

EE 440—ELECTROMECHANICAL CRT DESIGN 2 credits
The design and application to industrial electro-mechanical systems of electrical circuitry using solid state devices, integrated circuits, memory storage and electronics. PREREQUISITES: EE 110, 220, 210.

Offered Spring Semester

EE 450—OPERATIONAL AMPLIFIER CIRCUITS 3 credits
This course is designed to introduce the student to op-amp basic operations, parameters, parameter measurements, and basic operational amplifier circuitry. In addition, some special purpose linear circuits and amplifiers are covered. The laboratory section is concerned with the verification of theory studied in the course. PREREQUISITES: EE 110, EE 210, EE 220, EE 320, EE 330.

Offered Spring Semester

EE 490—FUNDAMENTALS OF POWER CIRCUITS 3 credits
The classes will be geared to the discussion of power circuits at the primary feeder level and should be of interest to industrial plant personnel although they will also be geared to utility people. Fundamentals of power-feeder calculations will be covered and will include power, power factor and power factor correction problem solving. Equipment to be studied will include generators, power transformers, potential and current transformers, power circuit breakers and relays. Typical power feeders will be described combining these equipments.

Offered Continuing Education

EE 491—FUNDAMENTALS OF POWER CIRCUITS 2 3 credits
A continuation of Power Circuits 1. The course will deal with three phase power circuit problems. Phase to ground, phase to phase and 3 phase ground fault problems will be studied. Other topics to be covered will be 3 phase voltage regulation. PREREQUISITE: EE 391.

Offered Continuing Education

Electronic Technology

ET 110—BASIC ELECTRONICS 1 3 credits
This course is an introduction to the fundamental concepts of electronics. Coverage includes concepts of electricity, series and parallel circuits, network theorems and laws, and metering principles. The purpose of this course is to present the concepts and ideas which will be needed in more advanced course work about specific electronic systems. Emphasis is placed on the analysis of direct current networks, specifically, the calculation of such circuit parameters as current, voltage and power for various network configurations.

Offered Fall Semester

ET 115—ELECTRONICS LAB 1 2 credits
This course is the first in a sequence of four courses designed to give the student practical experience with electronic components, measuring instruments and equipment. The emphasis in the laboratory work is on the verification of theory studied in Basic Electronics 1 about direct current networks. Equal emphasis is placed on the familiarization of the student with electronic metering principles, electronic testing procedures and the use of various electronic components commonly found in the Electronics industry.

Offered Fall Semester

ET 120—ELECTRONIC GRAPHICS 2 credits
This course emphasizes drafting form, geometric construction, orthographic projection, dimensioning and views. The latter portion includes electronic symbols, circuit diagrams, wiring schematics, and chassis layouts.

Offered Fall Semester

ET 210—BASIC ELECTRONICS 2 3 credits
The fundamental concepts of alternating current circuits are presented. Starting with a review of direct current theorems and laws, the concept of alternating currents are introduced using phasor analysis. Some topics include capacitive and inductive resistance, transients, time constraints, power and power factor, the j-operator, resonant circuits, circuit Q and bandwidth, filters and switching circuits. PREREQUISITES: ET 110 and MM 101-MM 103.

Offered Spring Semester

ET 215—ELECTRONICS LAB 2 2 credits
A continuation of Electronics Lab 1, the emphasis in this course is again placed on practical experience. The student receives continued exposure to electronic components, test equipment and circuitry. Now the laboratory work is concerned with the verification of theory studied in the student's course work on passive networks and active solid-state devices.

The student gains experience in the setting up and testing of useful electronic circuits and systems. PREREQUISITE: ET 115 with a "C minus" or better.

Offered Spring Semester

ET 220—ACTIVE NETWORKS 1 3 credits

This course is an introduction to the theory of solid state devices. Topics include an introduction to semiconductor materials and physics, dopings, P-N junctions, various diodes and diode circuits, an introduction to bipolar transistor biasing schemes, load line analysis, A-C models and equivalent circuits, determination of voltage and current gain, input and output resistance, and maximum signal handling capability. PREREQUISITES: MM 103, ET 110, ET 115.

Offered Spring Semester

ET 310—ACTIVE NETWORKS 2 3 credits

A continuation of Active Networks 1. This course deals with applications of the theory and circuits discussed in the first part of the course. Cascaded stages, coupling methods and frequency considerations are covered. Other topics include feedback concepts, differential amplifiers and linear integrated circuits, power amplifiers, voltage regulators, oscillator circuits, and latching devices such as SCR's, diacs, triacs and unijunction transistors. PREREQUISITES: Senior standing, ET 210, ET 215, ET 220, ED 230, MM 107, MM 109.

Offered Fall Semester

ET 320—COMMUNICATIONS SYSTEMS 1 3 credits

The aim of this course is to present information about the circuit processes and basic theories essential to the understanding of communications systems. Topics included in the course are noise limitations, filter theory, amplitude modulation, frequency modulation, single-sideband modulation, radio receivers and pulse modulation schemes. How these systems are used to transmit different information forms such as audio or video or data signals is studied in detail. PREREQUISITE: Senior standing.

Offered Fall Semester

ET 330—FUNDAMENTALS OF PULSE & DIGITAL CIRCUITS 3 credits

The fundamentals applying to nonsinusoidal pulse, timing and switching circuits are presented. The theory is demonstrated by actual measurement and observation and the circuits are analyzed mathematically in detail. Some of the topics covered include the application of circuit theorems, waveform analysis, integration and differentiation circuits, semiconductors as switches, multivibrators, sawtooth generators and gating and delay circuits. PREREQUISITE: Senior standing.

Offered Fall Semester

ET 340—COMPUTER ARCHITECTURE & LOGIC SYSTEMS 3 credits

This course is an introduction to the concepts of computer operation. Coverage includes computer programming, computer mathematics, Boolean algebra and logic circuitry. The aim of the course is to present the necessary information essential to the understanding of digital computers and numeric control systems. PREREQUISITE: Senior standing.

Offered Fall Semester

ET 350—ELECTRONICS LAB 3 2 credits

This course is a continuation of the laboratory experience for students involved in the Electronics Technology curriculum. However, now the emphasis is on material covered in the senior year. The theory learned in the course work is tested in the laboratory by observations of circuits and systems pertinent to those courses. Besides the reinforcement of concepts and ideas germane to the electronics curriculum, the student's proficiency with electronic equipment and test devices is improved and familiarity with practical electronics applications enhanced. PREREQUISITES: ET 215 with a "C minus" or better and Senior standing.

Offered Fall Semester

ET 420—COMMUNICATIONS SYSTEMS 2 3 credits

A continuation of Communications Systems 1. The aim of this course is to present the theory behind the operation of more sophisticated electronic communications systems. Topics included in this course are stereo FM and SCA systems, both monochromic and color television, transmission lines, antennas, and microwave systems. The operation and theory of microwave system is covered in detail with emphasis given to x-band waverguide devices and components. PREREQUISITE: Senior standing and ET 320.

Offered Spring Semester

ET 430—DIGITAL COMPUTER SYSTEMS 3 credits
This course is an introduction to the operation of digital computer systems. Coverage includes computer arithmetic, logic unit operation, the operation and organization of computer memory, the operation of input-output devices, computer timing and computer control. The aim of the course is to present the information essential to the understanding of the operation of digital computers. PREREQUISITE: ET 340 and Senior standing.

Offered Spring Semester

ET 440—INTEGRATED ELECTRONICS 3 credits
The aim of this course is to present information relative to the theory behind the operation of the "fundamental building blocks" of both analog and digital electronic systems. Topics included in the course are a review of bipolar and field-effect transistor theory, amplifiers, integrated circuit theory, crystal and feedback oscillators and voltage regulators. This course brings together the theory of semiconductor devices and their applications as useful electronic systems elements. PREREQUISITES: Senior standing.

Offered Spring Semester

ET 450—ELECTRONICS LAB 4 2 credits
This course is a continuation of Electronics Lab 3. The course is now concerned with the theory studied in the fourth semester of the electronics curriculum. Again, theoretical concepts are reinforced and practical ability enhanced. PREREQUISITES: ET 350 with a "C minus" or better and Senior standing.

Offered Spring Semester

Engineering and Science Transfer
(*See* Engineering Transfer)

Engineering Transfer
Option to Engineering & Science Transfer

ME 100—SPECIAL PROJECTS IN ENGINEERING 1 1, 2, 3, or 4 credits
Special projects in engineering under the direction of an instructor. PREREQUISITE: Permission of the Department Chairperson.

Offered Fall & Spring Semester

ME 101—SPECIAL PROJECTS IN ENGINEERING TECHNOLOGY 1 1, 2, 3, or 4 credits
Special projects in Engineering Technology under the direction of an instructor. PREREQUISITE: Permission of the Department Chairperson.

Offered Fall & Spring Semester

ME 102—SPECIAL PROJECTS IN ENGINEERING TECHNOLOGY 2 1, 2, 3, or 4 credits
Continuation of Special Projects in Engineering Technology 1. PREREQUISITE: Permission of the Department Chairperson.

Offered Fall & Spring Semester

ME 103—INTRODUCTION TO ENGINEERING 3 credits
An introduction to the field of engineering, including an overview of the engineering profession and discussion of engineering computations utilizing digital computers. Scientific topics include a study of the computer language TRUE BASIC, computer graphics, units, dimensions, numerical analysis techniques, and an introduction to linear algebra. A strong emphasis will be placed on using the computer to do extensive or repetitive computations in these areas. Weekly programming projects will be assigned. Two hours of lecture and one three-hour lab per week. PREREQUISITE: MM 101-103 or MM 150.

Offered Fall Semester

ME 106—INTRODUCTION TO COMPUTER-AIDED DRAFTING 1 credit
An introduction to the terminology and capabillities of the computer as an engineering design tool. Weekly lectures, laboratory exercises, and assignments will acquaint students with the available CAD software and hardware, and will enable them to produce dimensioned orthographic drawings and libraries of symbols and shapes useful in engineering applications.

Offered Fall Semester

ME 200—SPECIAL PROJECTS IN ENGINEERING 2 1, 2, 3 or 4 credits
Continuation of ME 100. PREREQUISITE: Permission of the Department Chairperson.
Offered Fall and Spring Semesters

ME 204—NUMERICAL ANALYSIS & COMPUTER METHODS 3 credits
Extensive application of the FORTRAN language to diverse engineering problems. Numerical techniques for evaluating functions, curve fitting, interpolation, differentiation and integration, and solving systems of algebraic and first and second order differential equations. Satisfies concentration requirements for transfer in computer science. PREREQUISITE: ME 104, Introduction to Engineering 22/Computer Programming.
Offered Fall Semester

ME 206—PROBLEM SOLVING USING FORTRAN 77 4 credits
An introduction to the computer language Fortran 77 with an emphasis on good programming style as a means to solving realistic engineering problems. Students will be able to use mainframe and microcomputer facilities on campus or off campus to complete bi-weekly programming projects that will be chosen to introduce the various disciplines of engineering: civil, mechanical, electrical, and chemical. Separate weekly homework exercises will follow the development of the rules of syntax of the language, including formatted input and output data, the use of direct-access data files, subscribed arrays, Do loops and other structures, character variables, and subprograms. Elements of numerical analysis, including numerical integration and methods for solving simultaneous equations will also be introduced. PREREQUISITE: ME 103
Offered Spring Semester

ME 310—MECHANICS 1 3 credits
A vector approach to the study of engineering statics. This includes the resolution and composition of forces as applied to the analysis of systems in static equilibrium. Friction, centroids and moments of inertia are investigated. PREREQUISITE: MM155 and Physics MP132.
Offered Fall Semester

ME 320—CIRCUIT ANALYSIS 1 3 credits
Terminal characteristics of ideal elements, active and passive. Ohm's Law and Kirchoff's Law. Introduction to network topology, independent variables, loop and nodal analysis. Definition and Response. Passive equivalent circuits. Active and Capacitance, VI characteristics, energy relations. First and Second order transient response to unit step and unit impulse excitation functions, initial conditions, natural frequencies. The complex-frequency s-plane. PREREQUISITES: MM 255, and MP 132.
Offered Fall Semester

ME 322—INTRODUCTION TO DIGITAL SYSTEMS 3 credits
An introduction to the theory of digital circuits, stressing general techniques for the analysis and synthesis of combinational and sequential logic systems.
Offered Fall Semester

ME 324—ELECTRICAL ENGINEERING LAB 1 1 credit
This course must be taken by those interested in transferring to the University of Massachusetts. This experimental work is designed to verify theory discussed in ME 320 and MK 320. Six experiments will be performed on both analog and digital circuits. The experiments involve resistive measurements, Kirchoff's Law, network theorems, conversion of power and maximum power transfer, inductance and capacitance, first and second order transient response, combinational logic design, and sequential logic design. CO-REQUISITE: ME 320

ME 325—ELECTRICAL ENGINEERING LAB 1 2 credits
This course must be taken by those interested in tranferring to the University of Lowell. This experimental work is designed to verify theory discussed in ME 320 and MK 320. Ten experiments will be performed on both analog and digital circuits. The experiments involve resistive measurements, Kirchoff's Laws, network theorems, conversion of power and maximum power transfer, inductance and capacitance, first and second order transient response, combinational logic design, and sequential logic design. CO-REQUISITE: ME 320.

ME 330—INTRODUCTION TO MATERIALS SCIENCE AND ENGINEERING 3 credits
A survey of the materials of engineering and the atomic, molecular, and crystal phenomena responsible for their properties. The unifying theme is that the structures of materials determine their properties. Materials considered include alloys, semiconductors, polymers, and

ceramics. Homework and tests are designed to build technical vocabulary and facility with tabulated and graphic data in solving basic materials analysis and design problems. PREREQUISITE: MC 203, second semester of General Chemistry. Students are encouraged to take ME 331 concurrently.

Offered Fall Semester

ME 331—MATERIAL SCIENCE LABORATORY 3 credits

An introduction to laboratory experimentation and instrumentation through ten sets of prescribed experiments and/or self-motivated laboratory projects utilizing apparatus and procedures standard to various aspects of materials science and engineering. Prescribed modules cover crystal growth, x ray diffraction, metallography, plastics, electrical measurements, and corrosion. Apparatus include tensile testing machines, equipment for preparing metallographic specimens, metallurgical microscopes, heat treating furnaces, x ray diffractometer, facilities for electrical measurements. The common purpose of the experiments is to bring out the connection between the internal structures of materials and their properties. PREREQUISITE (or to be taken concurrent with): ME 330

Offered Fall Semester

ME 335—MECHANICS OF MATERIALS 3 credits

Engineering applications of the principles of solid mechanics. Uniaxial and torsional problems are discussed, followed by beam deflections. Plane stress and strain are then presented, followed by stability problems in column design. PREREQUISITES: ME 310 and MM 255

Offered Spring Semester

ME 340—INTRODUCTION TO CHEMICAL ENGINEERING 3 credits

An introduction to the material and energy balances commonly applied to processes in the chemical, petroleum and environmental fields. Also included is a study of the pressure-volume temperature relationships of gases and a brief introduction to selected thermodynamic properties of solids, liquids, and gases. Computer solutions are utilized in selected problems. PREREQUISITES: MM255, Chemistry 22 and Introduction to Engineering 22.

Offered Fall Semester

ME 350—ENGINEERING THERMODYNAMICS 1 3 credits

A classical presentation of thermodynamics including the first and second laws and their application to batch and flow processes. Ideal gas, real gas, graphical, and tabular relationships among the physical properties of substances which are affected by energy transformations including pressure, temperature, volume, internal energy, enthalpy, and entropy. Heat engines, heat pumps, and carnot cycles. PREREQUISITES: MP 232 and MM 355

Offered Spring Semester

ME 355—ENGINEERING SURVEYING 4 credits

An introduction to the theory and practice of surveying. Topics discussed include transverse computations; the use of tape, level and transit; topographic surveying and mapping; the presentation of numerical data, and orthographic projections. Two hours of lecture and six hours of laboratory. PREREQUISITE: MM 250

Offered Fall Semester

ME 360—FLUID MECHANICS 3 credits

This course consists of a study of fluid statics and kinematics. A complete study of frictionless incompressible flow using Bernoulli's equation, the continuity equation and the momentum equation is presented and applied to various engineering problems. The concept of viscosity and laminar and turbulent flow are discussed. The boundary layer equations on laminar and turbulent flows are developed. COREQUISITE: Engineering Mathematics MM436.

Offered Fall Semester

ME 410—MECHANICS 2 3 credits

A vector approach to kinematics and particle kinetics utilizing Newton's Law of Motion, Conservation of Energy and the concept of Impulse and Momentum. Problems of rotation and translation are analyzed in rectilinear and curvilinear co-ordinates. PREREQUISITE: Mechanics 1 ME 310.

Offered Spring Semester

ME 420—CIRCUIT ANALYSIS 2 3 credits

Complex numbers, sinusoidal forcing functions, phasors, sinusoidal steady-state. Average real power, reactive power, and RMS values. Exponential forcing function, poles and zeros, in the s-plane, concept of the transfer function and its use in determining the forced response

and natural behavior of circuits. Superposition, Exponential Fourier Series. The Laplace Transform. Magnetic coupling, mutual inductance, and ideal transformers. Two-part parameter circuit analysis. PREREQUISITE: ME 320

Offered Spring Semester

ME 423—DIGITAL ELECTRONICS 3 credits

An inductory look at the p-n semiconductor junction and analysis of the properties and uses of the junction diode, the bipolar junction transistor (BJTs), and the field effect transistor (FETs), Diode-Transistor logic (DTL), transistor-transistor logic, high threshold logic (HTL), emitter coupled logic, integrated-injection logic, resistor transistor logic, and the CMOS technologies. Although some analog circuits are discussed, the course emphasizes the applications to digital systems. PREREQUISITE: ME 320 and (ME 322 or MK 320)

Offered Spring Semester

ME 426—ELECTRICAL ENGINEERING LAB 2 1 credit

This course must be taken by those interested in transferring to the University of Massachusetts. This experimental work is designed to verify theory discussed in ME 420. Six experiments will be performed on both analog and digital circuits. The experiments involve OP-AMP circuits, D and A conversion circuits magnitude and phase measurements of impedance, frequency response, resonance, transformers. CO-REQUISITE: ME 420

ME 440—CHEMICAL ENGINEERING THERMODYANMICS 1 3 credits

An introductory course dealing with the fundamental concepts and laws of thermodynamics and of the thermodynamic properties of materials. The major emphasis is on chemical systems. PREREQUISITE: ME 340.

Offered Spring Semester

ME 450—ENGINEERING THERMODYNAMICS 2 3 credits

Continuation of Engineering Thermodynamics 1. Deals with the engineering applications. These include fluid mechanics, gas dynamics, gas and vapor power cycles, refrigeration, heat transfer and chemical reactions and equilibrium. PREREQUISITE: Engineering Thermodynamics 1 ME 350.

Offered Fall Semester

ME 460—HEAT TRANSFER 3 credits

A study of the fundamental laws of heat transfer by conduction, convection and radiation. Application of conduction and convection to insulation and heat exchanger design. Selected one, two and three dimensional problems in conductive heat transfer are solved using analytical, graphical and numerical techniques. Heat transfer in laminar and turbulent boundary layers in comprehensible fluids is investigated. Radiative heat exchange is examined. PREREQUISITE: Fluid Mechanics ME360.

Offered Spring Semester

ME 905—DIRECTED STUDY IN COMPUTER SCIENCE 1 3 credits

Investigation of a specific topic in the computer science field under the direction of an instructor. PREREQUISITE: Permission of the department chairperson.

Offered Fall Semester

ME 915—DIRECTED STUDY IN COMPUTER SCIENCE 2 3 credits

A continuation of Directed Study in Computer Science 1. PREREQUISITE: Permission of the department chairperson.

Offered Fall & Spring Semester

English

LE 100—ENGLISH COMPOSITION 1 3 credits

The objective of this course is to improve the student's ability to communicate effectively in writing. Areas covered in this course will include the major rhetorical modes, effective construction of paragraphs and essays, and the documented research paper.

Offered Fall & Spring Semester

LE 200—ENGLISH COMPOSITION 2: AN INTRODUCTION TO LITERATURE 3 credits

This course involves the close reading and class discussion of fiction, poetry and plays, mostly modern, and essay assignments involving writing about literature. Emphasis is on the role of individual literary works as expressions of universal human experience. PREREQUISITE: LE 100

Offered Fall & Spring Semester

LE 201—BUSINESS ENGLISH 3 credits
This course is designed to prepare business students to meet the requirements of writing all kinds of communications in the business world, emphasizing the construction of proper business letters, reports, resumes, and memoranda. Students develop an understanding of correct style, form, and tone and gain an ability to write clear and concise business communications. PREREQUISITE: LE 100

Offered Fall & Spring Semester

LE 202—TECHNICAL REPORT WRITING 3 credits
Instruction has been organized to emphasize methods involved in the writing process. Special emphasis has been placed on the factors which the report writer must consider and the processes he must follow in writing a report. The student will become acquainted with the techniques of analyzing a writing situation, methods of investigating the problem, organizing the report and preparing the final copy. PREREQUISITE: LE 100

Offered Fall & Spring Semester

LE 203—FUNDAMENTALS OF SPEECH 3 credits
Everyone must communicate in life, and this course is about communicating in personal affairs, employment, and society. Students will write and present talks about a variety of topics and situations. Being educated means having something to say; this course will help you say it.

Offered Fall & Spring Semester

LE 300—LITERATURE OF THE WESTERN WORLD: BC TO 17th CENTURY 3 credits
This course examines literary classics of Western culture to develop both an appreciation of their intrinsic worth and an awareness of their significance in the history of ideas and of literature. Selections from Biblical, Classical, Medieval, and Renaissance periods are read and discussed. PREREQUISITE: LE 100 RECOMMENDED: LE 200

Offered Fall & Spring Semester

LE 301—BRITISH LITERATURE: ANGLO-SAXON TO NEOCLASSICAL PERIODS 3 credits
Readings in English literature from the Anglo-Saxon to the Neoclassical periods are studied with attention to their literary content and style. The literary works are also examined as representations of major literary and intellectual movements in Britain. PREREQUISITE: LE 100 RECOMMENDED: LE 200

Offered Fall & Spring Semester

LE 302—AMERICAN LITERATURE: 1620 – 1860 3 credits
The growth of American literature from the Colonial period to the Civil War reflects major developments in American thought, beliefs, and values. Such writers as Bradford, Bradstreet, Edwards, Franklin, Poe, Hawthorne, Melville, Emerson and Thoreau will be the basis of our close, critical reading and discussion, representing our literary and intellectual heritage. PREREQUISITE: LE 100 RECOMMENDED: LE 200

Offered Fall Semester

LE 304—A SURVEY OF BLACK AMER. LITERATURE 1 3 credits
This course is designed to accomplish two aims. First, there will be a concentrated study of the writings by Black Americans from slavery times to 1940, including not only the usual fiction, essays and poetry but also folk tales, orations, and slave narratives. Secondly, this course will focus upon developing an awareness of the unique quality of the "Black Experience" as it has defined the various modes and themes that characterize Black Literature.

Offered Fall Semester

LE 305—CHILDREN'S LITERATURE 3 credits
Children's Literature is an elective one-semester survey course. The material includes the study of the history of children's literature; juvenile novels for children 8-12; picture books, their subject matter, and illustrative techniques, for children ages 3-6; folktales and literary fairy tales; and children's poetry. The emphasis is on American publications. PREREQUISITE: LE 100 or permission of instructor

Offered Fall & Spring Semester

LE 306—IRISH LITERATURE 3 credits
The course introduces the student to contemporary Irish Literature. It includes myths, legends and a general history of Ireland, with the focus on such writers as O'Casey, Synge, Joyce, Yeats, O'Connor, Behan, Pearse, Heaney, and Montague. Films and slides for visual enrichment are shown regularly. PREREQUISITE: LE 100; RECOMMENDED: LE 200

Offered Spring Semester

LE 307—THE BIBLE AS LITERATURE 3 credits
Students read the text of the Old and New Testaments of the Bible as selected, emphasizing the wide variety of literature the books contain. Folktales, sagas, hero journeys, poetry, short fiction, wisdom literature, biography, sermons and drama show an encyclopedia of writing around a central theme and tradition. Students present reports on related material. PREREQUISITE: LE 100; RECOMMENDED: LE 200

Offered Spring Semester

LE 308—WOMEN IN LITERATURE 3 credits
This course will focus on the roles, myths, and sterotypes of women in different historical periods, and relate these roles to the social structure, the status, and function of women in the particular social setting in which the literary works were written. The study will enable us to discover to what extent the image of women in literature reflects reality, and to what extent it is an ideal encouraged to keep women in a particular role. Works by Virginia Woolf, Kate Chopin, and Anne Sexton are included readings. PREREQUISITE: LE 100; RECOMMENDED: LE 200

Offered Spring Semester

LE 310-312—COLLEGE THEATER WORKSHOP 1, 2, & 3 1, 2, or 3 credits
A workshop in all aspects of theatrical production. Participation in college theatre productions is required of all students. It may be taken by qualified students, faculty, and staff as a co-curricular activity with or without credit. Field trips to theaters and conventions and speakers from all areas of the theater will be included.

Offered Fall & Spring Semester

LE 343—MODERN POETRY 3 credits
This course examines representative works of poetry from various literary periods. The major poets of America and Europe are studied and discussed, though modern poetry is given considerable importance. The course gives particular attention to the art of poetry as a literary genre.

LE 400—LITERATURE OF THE WESTERN WORLD: 18th TO 20th CENTURIES 3 credits
This course examines significant literary works from the 18th century to the modern era, to develop both an appreciation of their intrinsic worth and an awareness of their significance in the history of ideas and of literature. Selections from the prose, poetry, and drama of these periods are read and discussed. PREREQUISITE: LE 100 RECOMMENDED: LE 200

Offered Fall & Spring Semester

LE 401—ENGLISH LITERATURE 2 3 credits
This course is a continuation of English Literature 1 and consists of readings from the Romantic period to the twentieth century, especially the works of Wordsworth and Coleridge, Byron, Keats and Shelley, Tennyson and Browning, and Eliot and Joyce. The works are studied from the same perspective and with the same emphasis as in LE 301.

Offered Spring Semester

LE 402—AMERICAN LITERATURE: 1860 – PRESENT 3 credits
Readings of American fiction, poetry, and drama from the Civil War to the present, ranging from Whitman, Dickinson, Twain, James, to Frost, Fitzgerald, Hemingway, Faulkner and several contemporary writers. This course continues the survey of American literature from the same critical perspective as LE 302. PREREQUISITE: LE 100 RECOMMENDED: LE 200

Offered Spring Semester

LE 404—A SURVEY OF BLACK AMERICAN LITERATURE 2 3 credits
This course is a continuation of LE 304 and, as such, also provides a broad sampling of Black American authors and their various types of writing. The works studied include those genres which have dominated the modern era from the mid-1940's to the present — realistic and protest fiction, innovative poetry and drama, contemporary criticism, etc. Moreover, the course will continue, on a more immediately relevant level, the development of an appreciation of that particular quality of life known as the "Black Experience."

Offered Spring Semester

LE 408—WOMEN IN LITERATURE 2 3 credits
This course will serve as a natural progression of the basic survey course in Women in Literature. However, rather than focusing on short stories by women, Women in Literature 2 will examine women's short novels, plays, essays, and poetry. The readings will include:

three Classic Greek plays, a forgotten 19th century American utopian novel, two 20th century novels, and a contemporary collection of essays and poetry. PREREQUISITE: An interest in the analysis and discussion of women's writing/issues, LE 100. RECOMMENDED: LE 200.

LE 900—DIRECTED STUDY IN ENGLISH Variable Credit
Projects for advanced individual study by special arrangement with the instructor and approval of the Department and Division Chairpersons. Students are expected to demonstrate willingness and ability to work on their own with minimal assistance.

LD 055—READING 1 ESL 3 credits
Reading 1 ESL offers basic reading skills to students for whom English is a second language. Its main objective is to improve pronunciation and vocabulary. This is done by developing visual and auditory recognition and decoding skills used with English sounds and words. Some comprehension and study skills will be included in the course.

LD 080—ENGLISH AS A SECOND LANGUAGE LEVEL 1 3 credits
This course in the acquisition of development of basic language skills provides the student with a guided program in the areas of conversational fluency, reading and listening comprehension, vocabulary development and elementary written expression. Pretests are used to evaluate individual competency and priority.

LD 081—ENGLISH READING COMPREHENSION FOR BILINGUALS LEVEL 1 3 credits
This course is a review of the basic language skills that are introduced in the LD 080—English as a Second Language I course. It is offered jointly with LD 080.

LD 082—BASIC SKILLS IN CONVERSATION LEVEL 1 3 credits
This course is a conversation course with emphasis given to oral skills, and conversational fluency. Through a broad range of student-centered activities, students are given the opportunities to practice and reinforce important grammatical structures and patterns.

LD 083—ENGLISH AS A SECOND LANGUAGE LEVEL 2 3 credits
English as a Second Language Level 2 is an intensive course designed for advanced beginning students of English as a Second Language. Through extensive oral and written drills and exercises, the course offers students an opportunity to master the fundamentals of English grammar and usage.

LD 084—ENGLISH READING COMPREHENSION FOR BILINGUALS LEVEL 2 3 credits
This course is a review of the language skills introduced in the E.S.L. 2 course. It is offered jointly with LD 083.

LD 085—BASIC SKILLS IN CONVERSATION LEVEL 2 3 credits
This course is an advanced conversation course with emphasis on oral skills. English Conversation 2 is a three-credit course designed for advanced beginning students of English as a Second Language. Through a broad range of student-centered activities, students are given an opportunity to practice and reinforce important grammatical structures and patterns. While these activities take various forms—role-plays, extended guided conversations, questions about the students' real world, and topics for classroom discussion or debate—they are intended to engage actively the students in meaningful conversation based upon their interests, backgrounds, and imagination. PREREQUISITES: To enter E.S.L. 2 and ERCB 2, students must either have successfully completed E.S.L. 1 and ERCB 1 or scored at the appropriate level on the placement examinations of the English as a Second Language Program. English Conversation 2 is a complement to these courses and is generally taken simultaneously.

LD 086—ENGLISH AS A SECOND LANGUAGE LEVEL 3 3 credits
Course is designed to meet the needs of students who have attained proficiency in English. It will provide practice in writing paragraphs and essays, reading and speaking. The emphasis will be on writing skills.

LD 087—ENGLISH READING COMPREHENSION FOR BILINGUALS LEVEL 3 3 credits
This course is a review of the basic language skills that are introduced in the English as a Second Language 3 course. It is offered jointly with LD 086.

LD 088—BASIC WRITING SKILLS 3 credits
This course provides a review of basic English skills in grammar and composition to prepare students to enter Communication Skills or Composition 1. The work in this course covers sentence structure, paragraph writing, and essay development. PREREQUISITES: To enter E.S.L. 3 and ERCB 3, students must either have successfully completed E.S.L. 2 and ERCB 2 or scored at the appropriate level on the placement examinations of the English as a Second Language Program.

LD 096; LD 097; LD 098 3 one-credit modules
and
LD 099—COMMUNICATION SKILLS 3 credits
These courses provide a review of basic English skills in grammar and composition to prepare students for college-level writing. The work in the course covers the parts of speech, sentence structure, paragraphing, and essay development. The courses, intended for students who have had difficulty with written English, provides preparation for English Composition 1, but it cannot be counted for graduation credit. NOTE: Students registering for the Communications Skills modules must complete all three modules before entering Composition 1. Students who do not complete the sequence may finish the work in a subsequent semester.
Offered Fall & Spring Semester

LD 090—READING 3 credits
Developmental Reading provides instruction to help students meet the demands of sophisticated college reading assignments. The reading program is designed to group students into appropriate classes according to ability after proper diagnostic testing. The classes will provide students with the tools needed to reach their educational goals. Techniques for success and skills are developed that can be transferred to all types of academic reading, for being a competent reader is essential to being well-educated. NOTE: Once a student has successfully completed one level of reading, he or she may enter a reading course at the next level.

LD 091—READING LEVEL 1 3 credits
Reading 1 offers practice in basic reading skills. The main objective is to improve comprehension on a literal level. Vocabulary and rate work will be included to meet individual student needs as the course progresses.
Offered Fall & Spring Semester

LD 092—READING LEVEL 2 3 credits
Reading 2 offers practice in improving comprehension, vocabulary, and rate. It is a continuation of the fundamental work in Reading 1 and is intended to help students read textbooks and non-academic material with greater ease and understanding.
Offered Fall & Spring Semester

LE 105—READING LEVEL 3 3 credits
Reading 3 is an advanced reading course. Vocabulary work includes extensive word part study. Comprehension selections include questions on the literal, interpretive and evaluative levels, and rate work demands that students demonstrate an increase in speed while maintaining high comprehension scores. Attention is also given to preparation for standardized tests including the Scholastic Aptitude Test.
Offered Fall & Spring Semester

Environmental Technology

HE 110—ENVIRONMENTAL STUDIES 3 credits
An introduction to environmental pollution, its effect on man and other living things and the basic principles of sanitation, treatment and control. It includes a discussion of the major pollutants of air, water and land; sewage and industrial waste composition; disease transmittal, control methods and water quality standards.
Offered Fall Semester

HE 120—PROCESS PROBLEMS 1 4 credits
An introduction to the analytical approach to problem solution and a familiarization with various calculation aids. It will include turning work problems into equations, problem solving, exponential quantities, graphing and chemical calculations.
Offered Fall Semester

HE 210—MUNICIPAL WASTEWATER PLANT OPERATIONS 1 3 credits

An investigation of the physical and chemical operations utilized in the treatment of liquid wastes. It includes such topics as collection & transportation systems; treatment methods; flow measurement; pumping; pre-treatment; screening; commination; grit removal; preaeration; primary and secondary treatment.

Offered Spring Semester

HE 220—BASIC INSTRUMENTATION 3 credits

A study of electrical, mechanical, hydraulic, and pneumatic operating principles as applied to instrumentation used for the measurement and control of process variables. Instrumentation terminology is introduced and familiarity with typical types and applications of instruments is developed.

Offered Spring Semester

HE 310—WATER SAMPLE ANALYSIS & CONTROL PROC 3 credits

A study of the processes utilized to produce drinking water. Topics include softening, absorption, disinfection, fluoridation, stabilization, coagulation-flocculation, aeration and algae control.

Offered Fall Semester

HE 320—INDUSTRIAL HEALTH & SAFETY 3 credits

A study of the interaction between workplace chemical, radiological and physical exposures, and human health. Topics include anatomy of the lungs, skin, eyes, and ears, and hazards including dust, solvents, flammables, noise, and non-ionizing radiation.

Offered Fall Semester

HE 330—MUNICIPAL WASTEWATER PLANT OPERATIONS 2 3 credits

A study of the biological, chemical, and physical processes utilized in treating domestic wastewater topics, including trickling filters, activated sludge, and solids processing operations such as thickening, dewatering, conditioning, stabilization, incineration, and solids utilization.

Offered Fall Semester

HE 410—WASTEWATER SAMPLE & PROCESS 3 credits

An investigation of the chemistry of industrial liquid wastes, their effects upon a domestic wastewater treatment plant, processes and the test procedures and techniques required for treatment plant operation. It includes such topics as plating, paper, textile, power plant, and food processing wastewater treatment.

Offered Spring Semester

HE 420—SYSTEMS MAINTENANCE 3 credits

A study of wastewater treatment plant equipment will emphasize diagnosis & repair and preventive maintenance programs. Topics include tanks, piping systems, valves, pumps, motors, controls, instruments, screens, filters, mixers, and chlorinators. Maintenance planning, scheduling and record keeping is emphasized.

Offered Fall Semester

HE 430—AIR SAMPLE ANALYSIS & CONTROL PROCESS 3 credits

An introductory course in the causes, effects, and control of air pollution. The interrelation of weather and air pollutants due to combustion, attrition, and evaporation is studied. Control measures emphasize industrial situations. Field trips and laboratory exercises reinforce the education.

Offered Spring Semester

HE 440—HAZARDOUS MATERIALS AND WASTE MANAGEMENT 3 credits

A study of regulations and procedures governing hazardous waste generators and shippers, and underground storage tanks. A survey of technologies used to clean up and recycle hazardous wastes in the environment.

Executive Office Administration
(*See* Office Administration)

Finance
(*See* Business Administration)

Fine Arts
Option to Liberal Arts Transfer

LA 140—ART HISTORY: PREHISTORIC TO GOTHIC 3 credits
Art History is a survey of the major visual arts of the western world: architecture, painting and sculpture of the Paleolithic Era, Ancient Egypt and Mesopotamia, the Aegean, Greece and Rome, Early Christianity and Islam, the Romanesque and Gothic periods. The course is designed to help the student to understand the impulse behind the key monuments in the history of western art. Slide-lecture instruction, using Janson's *History of Art*. Three in-class hours weekly.

Offered Fall Semester

LA 142—PAINTING 1 3 credits
Easel painting in oils or acrylics. Based on elementary understanding of the physical properties of oil and/or acrylic media, the course will emphasize individual expression within the framework of instruction in technical development, principles of pictorial composition and elements of visual representation. The main course objective is to increase students' sophistication toward aesthetic concerns and pictorial content while developing technical skills. No previous Art background is required. Five in-class hours weekly.

Offered Fall & Spring Semesters

LA 143—PRINTMAKING 1 3 credits
Basic study of materials, techniques and aesthetic consideration peculiar to relief printmaking and a special segment on producing monotypes and monoprints from intaglio plates and woodblocks. Students will create a series of prints using these techniques and will develop an understanding of the printmaking process in general by studying historical and contemporary prints. No previous art background is required.

Offered Spring Semester

LA 145—FIGURE DRAWING 3 credits
The primary focus of this course is the study of the human figure as a vehicle for clarifying both perception and expression. A primary course objective is the acquisition by the student of a sense of the evaluative process inherent in making and viewing art works in various drawing media. Basic drawing helpful, but not a prerequisite. Five in-class hours weekly.

Offered Spring Semester

LA 146—DESIGN: INTRODUCTION TO ART 3 credits
A combination slide-lecture and studio workshop course which teaches the basic concepts in two-dimensional design, providing the foundation needed to understand and produce significant drawings, paintings, prints, and graphic expressions. Working in collage, students complete projects emphasizing the plastic elements indivudually (line, shape, texture, etc.) and the aesthetic principles (rhythm, balance, unity, etc.) Main objectives of the course include establishment of a sophisticated art vocabulary, understanding of color theory, and the perception of spatial phenomena in their varied forms on two-dimensional surfaces. No previous art background is required. Five in-class hours weekly.

Offered Spring Semester

LA 147—BASIC DRAWING 3 credits
An introduction to a variety of drawing materials, techniques, and concepts. Emphasis is placed on developing each student's individual drawing strengths and making the student critically aware of the aesthetic soundness of a wide range of drawings, as each fulfills a different, expressive impulse. No previous Art background is required. Five in-class hours weekly

Offered Fall & Spring Semesters

LA 149—DRAWING COMPOSITION 3 credits
Drawing will be approached as a basis of composition and training in observation. Emphasis will be placed on developing perceptual awareness and critical self-evaluation as means toward growth in one's abilities in visual self-expression. Students will be encouraged to explore areas of individual strengths and interests, using the figure as a primary subject. Five (5) in class hours weekly.

Offered Spring Semester

LA 240—ART HISTORY: RENAISSANCE AND BAROQUE 3 credits
A survey course in the major visual art expressions of Western man, covering the Late Gothic Period North of the Alps, the Renaissance, Baroque and Rococo art of Italy, Germany, France, Spain, Flanders, Holland, and England. Emphasis is placed upon understanding the impulse behind man's artistic expression; the link between works of art and the culture in which they are produced. Slide-lecture instructions, using Janson's *History of Art.* Art History 1 is not a prerequisite. Three in-class hours weekly.

Offered Spring Semester

LA 242—PAINTING 2 3 credits
Painting 2 is a continuation of Painting 1 offering the student the opportunity to explore a variety of media and techniques in painting. Students must explore variety of spatial concepts used by the painter, working the problems presented as the course content into their own framework of artistic direction. PREREQUISITE: Painting 1 or permission of the instructor. Six in-class hours weekly.

Offered Fall & Spring Semester

LA 243—PRINTMAKING 2 3 credits
A continuation of Printmaking 1 with more advanced problems in technique and color process. Emphasis is placed on the development of individual direction. Five in-class hours weekly. PREREQUISITE: Printmaking 1 or permission.

Offered Spring Semester

LA 441; LA 442; LA 443—DIRECTED STUDY IN ART variable credit
Projects for advanced individual study by special arrangement with the instructor. and approval of the Department and Division Chairpersons. Students are expected to demonstrate willingness and ability to work on their own with minimal assistance.

Offered Fall & Spring Semesters

Foreign Languages

SPANISH

LF 120—CULTURAL SPANISH 3 credits
This course is a combination of language and culture. It stresses the importance of oral communication and cultural awareness in practical settings concerning the growing monolingual Spanish-speaking population in our communities. This course is designed for health/human services personnel. PREREQUISITE: Comp. 1 status or permission of instructor.

Offered Spring Semester

LF 121—ELEMENTARY SPANISH 1 3 credits
This course introduces the student to the basic grammatical structure of the Spanish language, with emphasis on pronunciation and Latin American culture. Intense oral drills review vocabulary used in real life situations and cultural themes connected with the Hispanic world. A contrast between English and Spanish and the use of cognates increases comprehension and vocabulary. PREREQUISITES: Clearance for Comp. 1 in the English Placement Test or permisson of instructor.

Offered Fall & Spring Semester

LF 122—CONVERSATIONAL SPANISH 3 credits
The focus of this course is on speaking and understanding the contemporary idiomatic patterns of the native speaker. Special attention is given to pronunciation and simple conversational patterns. Contemporary themes are emphasized, giving police, firemen, medical personnel and other interested groups the ability to express themselves in Spanish. PREREQUISITE: Comp. 1 status or permission of instructor

Offered Fall & Spring Semester

LF 221—ELEMENTARY SPANISH 2 3 credits
This is a continuation of Elementary Spanish 1, with emphasis on the four basic skills necessary for the mastery of a foreign language: listening, speaking, reading, and writing. More sophisticated grammatical and linguistic concepts are introduced and discussed, using the Spanish language as a tool for communication. Students gain knowledge of the contemporary thought of Hispanics in the United States and in the Hispanic world. Intense oral drills and practical vocabulary. PREREQUISITE: LF 121 or equivalent.

Offered Fall & Spring Semesters

LF 321—INTERMEDIATE SPANISH 1 3 credits
A review of grammar will be given in this course; oral drills and conversation receive special attention. The reading skills and basic writing are further developed. Spanish culture is emphasized. PREREQUISITE: 6 units of Spanish at entrance or LF 221.

Offered Fall Semester

LF 421—INTERMEDIATE SPANISH 2 3 credits
A continuation of intermediate Spanish 1. The reading and writing skills receive special attention. A Spanish novel is required reading. Taught in Spanish. Spanish culture is emphasized. PREREQUISITE: LF 321, or permission of the instructor.

Offered Spring Semester

LF 900—DIRECTED STUDY IN FOREIGN LANGUAGES Variable credit
Projects for advanced individual study by special arrangement with the instructor and approval of the Department and Division Chairpeople. Students are expected to demonstrate willingness and ability to work on their own with minimal assistance.

LD 079—BASIC STUDY SKILLS IN SPANISH Variable credit
This course is designed to deal with study skills necessary for successful college work. Topics discussed include note taking, outlining, time allotment, preparation for exams, and the organization of a term paper. The second part is designed to acquaint students with information concerning job placement, resumes and interviews.

General Business (*See* Business Administration)

General Business/Transfer Compact Option (*See* Business Administration)

General Studies

LS 090—TECHNICAL CAREERS DIRECTIONS SEMINAR 1 credit
Overview of possible careers in the technologies and the training required for each. Presentations by representatives from each technical department at STCC, including but not limited to, electronic technology, electrical technology, landscape/plant science technology, drafting and design technology, graphic arts technology, telecommunications technology, biomedical instrumentation technology. A student-centered seminar to identify personal needs and strengths, while integrating principles from current educational experiences with career goals.

Offered Fall Semester

LS 091—INTRODUCTION TO COLLEGE AND CAREERS 1 credit
This course is designed to assist incoming students to make a successful adjustment to the demands of college life. Every effort is made to maintain a flexible course content that adjusts to the needs of the group. Topics explored in the course include: self-esteem, goal setting, assertiveness, and critical thinking. In addition, information is presented on study skills, budgeting time, taking notes, studying for exams, etc. The final third of the course concerns such areas as career awareness, individual self identification, and an overview of job attainment strategies.

Offered Fall & Spring Semesters

LS 190—INTRODUCTION TO COOPERATIVE EDUCATION 1 credit
Introduction to Cooperative Education is a course designed to provide realistic and practical career information through stimulating and participatory experiences. This course is designed to bridge a student's preparation and insight into one or more Cooperative Education experiences. The course design will include visits to participating Cooperative Education companies to help students perform a realistic career assessment.

Gerontology
(*See* Human Services Associate/ Gerontology)

Graphic Arts Technology

GA 110—LINE PHOTOGRAPHY 3 credits
Line photography serves to introduce the student to the basic reproduction photographic processes used in the printing industry. Beginning with line photography, the students will learn to process high contrast litho film using process cameras and processing techniques similar to those found in industry. In class the students will learn the basic theories of tone reproduction when the course focuses on elementary halftone reproduction.

Offered Fall Semester

GA 120—TYPOGRAPHY & COPY PREPARATION 3 credits
Typography and Copy Preparation is the first of a two-course sequence designed to acquaint the students with basic paste-up techniques and the elementary concepts of modern typography. The first half of a modular book of paste-up, typography, and layout projects will be required of every student. Presented during the technical lecture section of the course will be specific technical information on paste-up, typography, computer typesetting, and copyfitting.

Offered Fall Semester

GA 130—INTRODUCTION TO PRINTING 1 credit
This basic core course is designed to introduce students to the printing industry. Through a series of lectures the story of printing and communications is told chronologically from man's first attempts at communication through the development of mass communication printing systems, to a vision of what the world of printing might be like in the future. Assignments are designed to challenge the student's logical understanding of the purpose of mass communications through various printing processes in today's society.

Offered Fall Semester

GA 210—BASIC LITHOGRAPHIC IMAGE ASSEMBLY 3 credits
In Basic Lithographic Image Assembly, students learn basic single color stripping procedures as are commonly used in the offset printing industry. Using a modular project book, the students will learn elementary stripping techniques. By the time they are finished with the required series of projects, they will be qualified as strippers for single color work. The lecture section of the corse will supplement the lab book by explaining specific information and extending beyond the scope of the book.

Offered Spring Semester

GA 220—LAYOUT & COPY PREPARATION 3 credits
Layout and Copy Preparation is the second part of a two-course sequence designed to acquaint the students with basic paste-up techniques and the elementary concepts of advanced copy preparation techniques used in multi-color design. The second half of a modular book of paste-up, layout, copy prep, and design projects will be required of every student. Presented during the lecture session of the course will be specific technical information useful for the thorough understanding of the projects. PREREQUISITE: GA 120

Offered Spring Semester

GA 310—HALFTONE PHOTOGRAPHY 3 credits
Halftone Photography is a lecture and laboratory course of the photographic technology used in the conversion of continuous tone original copy into press-ready screened reproductions. The lecture portion of the course, beginning with a brief history of the processes

involved, will quickly move into discussion of the contemporary theories of the photographic process, halftone screen conversion, sensitometry, and color reproduction. The laboratory portion of the course will consist of experiments ranging from basic halftone exercises through tonal modification techniques, from duotones through simple color separation. PREREQUISITE: GA 110

Offered Spring Semester

GA 320—ADVANCED COLOR LITHOGRAPHIC IMAGE ASSEMBLY 3 credits

Advanced Color Lithographic Image Assembly is a lecture and laboratory course in what is commonly known in the printing industry as color stripping. The lecture portion of the course will provide a theoretical foundation for the sophisticated and complex techniques involved in contemporary color lithographic image assembly. The subject matter discussed in lecture will range from a detailed examination of press and bindery requirements, an in-depth survey of materials in use, and a comprehensive study of advanced contacting procedures. The laboratory portion of the course will be comprised of increasingly more difficult and complex projects ranging from simple color lithographic image assembly to multiple complementary flats, chokes and spreads, duplicates, and "fake" color separation. PREREQUISITES: GA 110 and GA 210

Offered Fall Semester

GA 350—GRAPHIC DESIGN 3 credits

A course designed to further develop the student's ability to create layouts for advertising. The student gains further knowledge in the arrangements of headlines, copy blocks, photographs, art work, logotypes, borders, and other typographic devices that serve as a preview for the client and a guide for the illustrator, letter artist, engraver, typesetter and printer. The lab portion of the course will acquaint the student with the mechanical operations of the typographer, artist, photographer, process cameraman, and pressman in relation to what must be specified when ordering any of their services in the production of an advertisement. PREREQUISITES: GA 120 and GA 220.

Offered Fall Semester

GA 360—OFFSET PRESSWORK 1 3 credits

Offset Presswork 1 & 2 is a series of courses designed to familiarize the student with the theory and operation of offset lithographic presses. Presswork 1 includes the elements and components of a press in technical and theoretical detail. Laboratory experiences are designed to familiarize the student with the complete set up of a small duplicator press through the use of a modular project. PREREQUISITES: GA 110 and GA 210.

Offered Fall Semester

GA 370—PRINTING MANAGEMENT 3 credits

This course builds a framework to aid in making correctly the many decisions which are the essence of good management of a printing plant, large or small. The principles of finance, accounting procedures, cost rate establishment and control supervision, industrial relations, estimating, pricing and planning for growth are stressed by basic theory and illustration of the application of this theory.

Offered Fall Semester

GA 380—CHEMISTRY OF LITHOGRAPHY 1 3 credits

A study of the fundamental principles of chemistry in relation to the properties, composition and structure of matter, the changes that matter undergoes and the laws governing the changes. Theories of chemical reactions, chemical bonding & molecular structure are covered in preparing the student for advanced work in the lighographic process. 3 one-hour lectures per week.

Offered Fall Semester

GA 397—GRAPHIC ARTS COOPERATIVE EDUCATION 3 credits

Graphic Arts Cooperative Education is a course which enables students to achieve work experience in assignments which are directly related to their major field of study. It provides valuable first-hand experience in the field, wages earned to defray most college expenses, and work experience to give participating students "paid experience" references for future employment opportunities. PREREQUISITE: Senior Standing; GA 110, GA 120, GA 210, and GA 220.

GA 410—CHEMISTRY OF LITHOGRAPHY 2 4 credits

Topics in chemistry relating to Graphic Arts including photography and photographic processes, colors, inks and printing. Laboratory. PREREQUISITE: GA 380 Chemistry of Lithography 1.

Offered Spring Semester

GA 420—COLOR REPRODUCTION PROCESSES 3 credits

Color printing has become an essential part of today's printing technology. As color printing grows, the technology of the process becomes more sophisticated. Yesterday's handmade process color separations are yielding to today's computerized laser scanner generated color separations. With this in mind, Color Reproduction Processes will examine the full spectrum of color reproduction for the printing process. The course will begin with an overview of the physical and perceptual phenomenon of color and quickly proceed to a brief history of color printing. From there, the course will concentrate on the traditional color separation processes (direct and indirect) and proceed to an introduction of color scanner technology.

Color Reproduction Processes will also cover such diverse color reproduction-related topics as automatic photographic processor maintenance, four-color process color image assembly, and process color presswork. Moreover, the curriculum will be dividied into lecture sessions and laboratory exercises in order to maintain a strong balance between the theory and practical application of the subject matter covered in the course.

Offered Spring Semester

GA 460—GRAPHIC DESIGN/PUB AND PACK 3 credits

The objective of this course is to demonstrate what typography is and particularly what it is to the modern graphic designer. The student is made aware of the many influences that have shaped modern typography, with particular emphasis on the effects of technology and contemporary art movements. Laboratory work includes creative projects in typographical composition for effectiveness and aesthetic value. PREREQUISITES: GA 120, GA 220, GA 350

Offered Spring Semester

GA 470—OFFSET PRESSWORK 2 3 credits

A continuation of Offset Presswork 1. Offset Presswork 2 consists of discussing technical and theoretical topics such as make ready systems, press standardization, plates, blankets, and pressroom chemicals. The lecture series ends with a discussion of web presses. Laboratory experiences are designed to acquaint the student with high quality presswork techniques including the printing of process color utilizing full size offset presses. PREREQUISITES: GA 110, GA 210, GA 360.

GA 480—PRINTING PRODUCTION MANAGEMENT 3 credits

A continuation of Printing Management. The principles of production control, planning, purchasing, inventory control and scheduling, are stressed by basic theory and case study application to solve basic production problems. PREREQUISITE: GA 370.

Offered Spring Semester

GA 490—PRINTING ESTIMATING 3 credits

This course is intended to acquaint the student with the complexities of developing pricing in the printing industry. By using case studies, students are made aware of some common problems with estimating as well as gaining valuable practical experience. An in-depth analysis of variables that affect pricing will be presented. PREREQUISITES: GA 370 and concurrent GA 480.

GA 497—GRAPHIC ARTS COOPERATIVE EDUCATION 3 credits

Graphic Arts Cooperative Education is a course which enables students to achieve work experience in assignments which are directly related to their major field of study. It provides valuable first-hand experience in the field, wages earned to defray most college expenses, and work experience to give participating students "paid experience" references for future employment opportunities. PREREQUISITES: Senior Standing: GA 110, GA 120, GA 210, and GA 220.

Offered Spring Semester

GA 510—MEDIA TECHNIQUES 3 credits
This course is a lecture and workshop course designed to be used by commercial art students and advertising artists. Students will learn how to use specific tools, design elements, and production processes that concern an advertising designed. Philosophies of art, economics, and education are discussed and related to the advertising field. Several design problems are laid out in detail to assist students in experiencing both layout and production techniques with examples in the required text providing a basis for building a portfolio that can be suitable for future employment or for entering an advanced school. PREREQUISITES: GA 120, GA 220, and concurrent GA 350.

Offered Fall Semester

GA 530—SCREEN PRINTING 3 credits
This course is an introduction to the porous printing process. Technicians have called it silk screen printing, and artists call it serigraphy. The lecture series will present the latest technical advances in screen printing, which is one of the most rapidly advancing branches of the printing industry. The lab sequence will allow the student to experiment with this process, the most versatile of printing processes. Experiments include handcut, photographic direct and indirect, and an introduction to machine operations. PREREQUISITES: GA 110, GA 130.

Offered Spring Semester

Health Careers Community

AK 100—HEALTH CAREERS SEMINAR 3 credits
This course is designed as a group guidance seminar for incoming pre-health students. Students are introduced to the services of the Health Careers Community. All activities are designed to enhance self-esteem, increase motivation, and develop useful study habits. Career assessment and guidance are available. This course provides constant academic and personal guidance for the first-semester student.

AK 101—HEALTH DIRECTIONS SEMINAR 1 4 credits
This is a fundamental course which introduces the student to basic health concepts and basic communication in the field of health. The focus is planned to provide a basis for cognitive career exploration in the Health Directions Seminar 2.

AK 103, AK 103L—HEALTH DIRECTIONS SEMINAR 2 (4 credit option)
This course uses the same content as found in the Health Directions Seminars. Basic concepts of pathophysiology are presented as a focus point to introduce health careers which specifically meet the needs of the individual with the given pathophysiological condition. Thus the health need and the career are introduced simultaneously.

AK 104—HEALTH DIRECTIONS SEMINAR 2—PRACTICUM 3 credits
This course is designed for students who wish to take the practicum of the Health Careers Seminar only. Planned observations in each of the eleven health careers offered by Springfield Technical Community College will be provided. These observations will be within the laboratories of STCC and diverse health care facilities.

AK 301—HEALTH CAREER GUIDANCE SEMINAR 1 1 credit
A group guidance approach to assist students to identify personal/professional concerns which might block their learning, and to facilitate referrals to meet these needs. Through the medium of an independent contract for learning, the student will negotiate and implement a role modeling activity with the Health Care Community to serve as a motivating factor for the pre-health students. (First semester, Health/Human Services/Nursing curriculum.)

AK 302—HEALTH CAREER GUIDANCE SEMINAR 2 1 credit
An extension of AK 301. (Second semester. Health/Human Services/Nursing curriculum.)

AK 303—HEALTH CAREER GUIDANCE SEMINAR 3 1 credit
An extension of AK 302. (Third semester, Health/Human Services/Nursing curriculum.)

AK 304—HEALTH CAREER GUIDANCE SEMINAR 4 1 credit
An extension of AK 303. (Fourth semester, Health/Human Services/Nursing curriculum.)

Heat/Power/Air Conditioning Technology

HP 110—THEORY OF CONTROLS 3 credits

A course designed to deal with the basic theories and concepts required by both air-conditioning and heating servicemen. Topics covered include: Basic electricity, meters, principles of motor operation, transformers and relays, along with an introduction to control circuits. These studies are essential in order that the individual comprehends the control circuits to which he will be exposed in his future courses.

Offered Fall Semester

HP 120—MECHANICAL SKILLS & PROCEDURES 1 2 credits

A course that deals with the development of the manual and technical skills required in the Heat/Power/Air Conditioning industry. Attention is given to current principles and practices that apply to the care and use of hand tools and measuring devices, basic machines, tubing and piping layouts, soldering and welding construction, metal fabrication, equipment services and installation, fundamental electric circuit wiring and field service training.

Offered Fall Semester

HP 130—ENGINEERING GRAPHICS 331 1 credit

A course that deals with the breakdown of a 3 dimensional object into simpler 2 dimensional views. These views are used to show internal shapes and dimensions of the object. Emphasis is placed on the basic skills such as proper use of drafting instruments and producing neat, concise drawings.

Offered Fall Semester

HP 210—HYDRONIC LAYOUTS & CONSTRUCTION 2 credits

A combination lecture and laboratory program to introduce the student to the basic theories and specialized skills essential for the construction of sound, practical, functional, and competitive wet heat installations. Topics include specifications and data for pipe and respective components, review of metal tubing and fittings, interpretation of basic architectural specifications and working drawings, a comparison of sample applications as they relate to current principles and practices. A summary assignment obligation to allow the student to express and illustrate individual creative layout and design. One hour of lecture and three hours of laboratory. PREREQUISITE: HP 130.

HP 220—COMBUSTION CONTROL CIRCUITS 3 credits

Domestic heating control systems for steam, forced warm air and forced hot water, and the components which make up each control system are covered in detail. Residential oil burners and their components, thermostats, and basic trouble-shooting are also covered during this semester. PREREQUISITE: HP 110.

Offered Spring Semester

HP 230—MECHANICAL SKILLS 2 2 credits

An advanced course that is predominantly a laboratory program. Instruction is directed toward the student achieving competency in specialized skill areas, including electrical control wiring, oil burner installation and servicing, and heating system-related components installation. Specific lab assignments directed toward installation and set-up of residential heating systems. PREREQUISITE: HP 120.

Offered Spring Semester

HP 240—PRINCIPLES OF REFRIGERATION 3 credits

The science of refrigeration is based on physics, chemistry, and the transfer of heat which forms the foundation for an understanding of the refrigeration process. After these principles are learned in the first few weeks, emphasis is placed on the refrigeration cycle and its components. A study is made of the properties of the refrigerants that are used in the different applications, and of the instruments that are necessary in the servicing of these systems, both domestic and commercial. Extensive lab assignments also bring to the student a hands-on approach to the analyzing and servicing of refrigeration and air conditioning systems.

Offered Spring Semester

HP 310—COMMERCIAL PROGRAMMING CONTROLS 4 credits

A continuation of Control Circuits Applications 1. Basic electronic solid state and programming controls used in the heating industry are introduced. A number of these controls are analyzed to illustrate their operation. Industrial schematic wiring diagrams are studied, and the student

learns to interpret line and ladder types of diagrams. Field trips are arranged to observe control systems in operation. Laboratory experience includes installing and piping of burners and wiring, and designing of controls, with emphasis on combustion testing to meet today's pollution control requirements. PREREQUISITE: HP 220.

Offered Fall Semester

HP 320—HEATING SYSTEM DESIGN 3 credits

A lecture course designed to acquaint the student with the proper principles used in designing hot air heating systems. A thorough coverage is made of heat transfer through building materials essential in the calculations of heat losses, for both residential and commercial structures. Instruction is given in the layout and construction of heating hot air systems. The student will develop the knowledge required to design efficient heating systems.

Offered Fall Semester

HP 330—POWER PLANT OPERATION 1 3 credits

An extensive study is made of the complex systems that make up the steam generation plant. Emphasis is placed on: boiler and steam generators and their classification and structural design; applied mechanics and related equipment such as heaters, receivers, pumps, and piping systems. Combustion and the transfer of heat released by the burning of fuels requires a study of thermodynamics and the heat capacities of different substances. Steam tables and other charts are used. Chimneys and the mechanical draft equipment required for the combustion process are also studied.

Offered Fall Semester

HP 340—FUNDAMENTALS OF AIR CONDITIONING 3 credits

With the knowledge gained in Principles of Refrigeration (HP 240), a more advanced study is emphasized through extensive lab assignments dealing with the larger systems. Motors and motor safety controls, as well as other related electrical components, including relays, contactors, and transformers. Schematics and testing instruments are used in performing service and diagnostic functions. The lecture series is an in-depth study concerned with the applicaton of the engineering principles used in the design of conditioning systems. These include psychrometrics, building surveys and load estimating procedures, ductwork and air distribution systems.

Offered Spring Semester

HP 410—ADVANCED HEATING SYSTEM DESIGN 3 credits

This course is designed to acquaint the student with the proper principles and procedures used in designing steam and hydronic heating systems. Instruction is given in the layout of one-pipe steam systems, series loop and one-pipe venturi forced hot water systems. In addition, the sizing and piping of indirect domestic hot water heaters and industrial tank type heaters are covered. PREREQUISITE: HP 320.

Offered Spring Semester

HP 420—INDUSTRIAL CONTROL APPLICATIONS 4 credits

A continuation of the study of larger, more complex control systems required by certain states and insurance associations. Emphasis is placed on studying the latest in self-checking programming controls used with gas, oil, and combination gas/oil burners. The use of factory units brings this application into focus. Complete testing and servicing are emphasized. Periodically factory representatives are invited to lecture on the latest up-to-date equipment in this constantly changing industry. Qualified students are eligible to take the Massachusetts examination for a Commercial Programming License. PREREQUISITE: HP 310.

Offered Spring Semester

HP 430—POWER PLANT OPERATION 2 3 credits

A comprehensive study geared to an actual power plant. The College's own complex, and others in the local area are used to acquaint the student with typical power plant operations. An in-depth study is made of the components that make up the entire power station and the different combustion control methods required for safety and efficiency. Boiler feedwater treatment is a must for power engineering students because of the effects of the scaleforming salts found in water supply systems.

Offered Spring Semester

HP 450—POWER STATION ENGINEERING 3 credits

Having the background knoweldge of the power plant structure through completing Power Plant Operation 1 and 2 (HP 330 and HP 430), students in this course continue with emphasis on the power generation equipment in six areas of concern: 1) energy flow cycles; 2) steam

turbine principles; 3) condensers, both direct and indirect contact designs; 4) cooling towers, mechanical and hyperbolic designs; 5) nuclear power stations and hydro power; and 6) the electrical distribution systems and transformer hook-ups and sub-stations. This area of the study of power station engineering also encompasses the operations of these stations and a review of state requirements for operators and engineers. The A.C.E. power station simulator is used to allow students to proceed through all of the steps necessary in starting and putting on-line a typical central power station burning pulverized fuel.

Offered Spring Semester

History

NH 100—SURVEY OF EARLY WESTERN CIVILIZATION 3 credits

Origin and development of Western Civilization beginning with the classical civilizations of Greece and Rome, continuing through early Christianity and the Middle Ages, and concluding with the Renaissance and Reformation.

Offered Fall & Spring Semester

NH 110—SURVEY OF EARLY U.S. HISTORY 3 credits

History of the United States from the Colonial period to the end of the Civil War and Reconstruction. A topical approach is followed within a chronological framework centering on the colonial origins of American society, its separation from England, the subsequent process of nation building and the development of the Civil War during the Ante-Bellum period.

Offered Fall & Spring Semester

NH 200—SURVEY OF MODERN WESTERN CIVILIZATION 3 credits

Modern Western Civilization from the end of the Middle Ages to the present. Begins with Seventeenth Century Europe and discusses the beginnings of modern science; the Enlightenment and the political revolutions in England, America, and France; the industrial and intellectual revolutions of the Nineteenth Century; the World Wars of the Twentieth Century and developments which follow in the post-war period. No Prerequisites.

Offered Fall & Spring Semester

NH 210—SURVEY OF MODERN U.S. HISTORY 3 credits

History of the United States from the end of the Reconstruction period to the present. Consideration will be given to the impact of the Industrial Revolution on Late Nineteenth Century America and the influence of war and reform on the nation during the Twentieth Century. A social-cultural and new political approach will be utilized. No Prerequisites.

Offered Fall & Spring Semester

NH 300—HISTORY OF CIVILIZATION TO 1650 3 credits

This course follows the development of China, Japan, India, Africa, Eastern Europe, and South America from the Stone Age to 1650. It will examine scientific, economic, social, and cultural trends, with particular emphasis on the influence of religion and philosophy that is not based on the Judeao-Christian ethic.

NH 320—INTRODUCTION TO AFRO-AMERICAN HISTORY 3 credits

The purpose of this course is to introduce the student to the history of the Afro-American in the United States. Beginning with an exploration of the African heritage, the course will explore the social, economic, and political role of the Afro-Americans from the colonial period through the Civil Rights Movement of the 1960's. The course will also examine the development of black culture in the United States, the diversity of this culture, and its contribution to American culture in general.

NH 400—HISTORY OF CIVILIZATION SINCE 1650 3 credits

This course follows the development of China, Japan, India, Africa, Eastern Europe, and South America from 1650 to the present. It will examine scientific, economic, social, and cultural trends with particular emphasis on the influence of religion and philosophy that is not based on the Judeao-Christian ethic.

NH 900—DIRECTED STUDY IN HISTORY Variable Credit

Semester hour credit will vary from one to three, depending upon the written, agreed-upon, approved, student-professor contract.

Human Services Associate
Generalist Option

AM 102—HUMAN SERVICES 1 5 credits

Emphasizing the multi-disciplinary approach to life cycle needs, coordinated academic studies and supervised practicum introduce the student to Human Services theory and practice. Historical development of Human Services, special needs populations, Human Services occupations, community dynamics, intervention techniques, and interpersonal skills will be the focus of lectures, discussions, and group projects. Supervised practicum, averaging four hours weekly, is assigned in the last eight weeks of the semester. Planned observation and client contact will be supervised and evaluated by qualified agency personnel. Faculty will monitor practicum through scheduled site visits. In a weekly campus seminar, competencies and attitudes essential for Human Services practice will be discussed. PREREQUISITE: Acceptance in the Human Services Associate program.

Offered Fall Semester

AM 202—HUMAN SERVICES 2 5 credits

Through coordinated academic studies and supervised practicum, the student continues to focus on the theory and practice of Human Services. Community systems, networking, demographics, legal concepts, assessment techniques, communication. Individual and group dynamics are studied as factors affecting the human life cycle, and effecting human service systems. Supervised practicum, averaging six hours weekly, continues with the contracted cooperating community agency defined in Human Service 1. Qualified agency personnel provide direct supervision of client contact, and evaluate practicum. Faculty continue to monitor practicum through scheduled site visits. Participation in the weekly campus seminar affords the student opportunities to delineate personal and professional objectives as the basis for selecting second year concentration. Seminar discussions enable the student to compare agency organization patterns and inter-agency referral practices, while sharing practicum experience and developing reporting and recording skills. PREREQUISITE: Satisfactory completion of AM 102.

Offered Spring Semester

AM 302—HUMAN SERVICES 3 7 credits

Focusing on techniques and competencies required for the generalist, the student continues to study the theory and practice of Human Services. Legal mandates, community organizing, needs assessment, problem solving, information management, professional licensure, and employment will be reviewed. Placement in a contracted cooperating community agency will average twelve hours weekly. Qualified agency personnel will supervise and evaluate practicum. The student will progress through scheduled site visits. The weekly campus seminar, facilitating sharing of practicum experience, affords the student guidance in evaluating personal and professional goals. PREREQUISITES: Satisfactory completion of AM 102, AM 202. Enrollment in AM 303, AM 304, AM 305, AM 306.

Offered Fall Semester

AM 303—VIDEO IN HUMAN SERVICES: TECHNIQUES 1 credit

Historical development of video as an educational and therapeutic resource in Human Services; legal and ethical dimensions, equipment utilization, and production techniques are studied. PREREQUISITES: Satisfactory completion of AM 102, AM 202, enrollment in AM 304, AM 302, AM 305, AM 306 or AT 102.

Offered Fall Semester

AM 304—GROUP DYNAMICS: THEORY AND PRACTICE 1 2 credits

Through this course the student experiences groups as open systems. Focusing on interactions in and among groups, the student is afforded opportunities to examine dimensions, values, and interpersonal styles. Dynamics are studied as the basis for authority, leadership, and membership. All scheduled sessions must be attended. PREREQUISITES: Satisfactory completion of AM 102, AM 202. Enrollment in AM 302 or AT 102, AM 303, AM 305, and AM 306.

Offered Fall Semester

AM 305—ORGANIZATIONAL BEHAVIOR 2 credits

Theory and practice of group dynamics issues in organizations are introduced. Studying the attraction to groups begins an analysis of evolution, models, transitions, and maintenance of organizational behavior. Authoritative and democratic leadership behavior styles are de-

fined. The student is afforded opportunities to examine the typical dimensions, values, and interpersonal elements of behavior in organizations. All scheduled sessions must be attended. PREREQUISITES: Satisfactory completion of AM 102, AM 202. Enrollment in AM 302 or AT 102, AM 303, AM 304, AM 306.

Offered Fall Semester

AM 306—MANAGEMENT IN HUMAN SERVICES 1 credit

This one-credit course is designed for participants to develop a management style which will strengthen their leadership abilities within the social service setting. An overview of the knowledge and skills required for competency as an administrator/manager in Human Services will be emphasized. PREREQUISITES: Satisfactory completion of AM 102, AM 202. Enrollment in AM 302 or AT 102, AM 303, AM 304, AM 305.

Offered Fall Semester

AM 402—HUMAN SERVICES 4 7 credits

Through coordinated academic studies and supervised practicum the student continues to focus on techniques and competencies required for the generalist in Human Services. Advocacy, agency linkages, rehabilitation, prevention, consultation, and program evaluation are studied. Supervised practicum, averaging twelve hours weekly, continues with the contracted cooperating community agency defined in Human Services 3. Qualified agency personnel will supervise and evaluate practicum. The student is expected to complete practicum assignments with indirect supervision. Faculty continue to monitor practicum through scheduled site visits. Through the weekly campus seminar, the student will share practicum experience, evaluate competency development, and define realistic post graduation plans. PREREQUISITES: Satisfactory completion of AM 202, AM 302, AM 303, AM 304, AM 305, AM 306. Enrollment in AM 403, AM 404.

Offered Fall Semester

AM 403—VIDEO IN HUMAN SERVICES: APPLICATIONS 1 credit

Information management skills are the focus of this course. Video production demonstrates data collection, uses of consultation, presentation of recorded information, and dissemination of information depicting supervised practicum experience. PREREQUISITES: Satisfactory completion of AM 102, AM 202, AM 303, AM 304, or AT 102. Enrollment in AM 404, AM 402, or AT 202.

Offered Spring Semester

AM 404—GROUP PROCESS: THEORY AND PRACTICE 2 credits

Focusing on processes operating in and among groups, the student develops awareness of the social forces which influence group performance. Authority, responsibility, boundary functions, and significance of environment will be studied as socio-technical issues. Leadership and membership experience will enable the student to assess individual abilities essential for effective participation in groups. PREREQUISITES: Satisfactory completion of AM 102, AM 202, AM 302 or AT 102, AM 303, AM 304, AM 305, AM 306. Enrollment in AM 402 or AT 102, AM 403.

Offered Spring Semester

Human Services Associate Gerontology Option

AT 102—GERONTOLOGY 1 7 credits

Focusing on techniques and competencies required for gerontology, the student continues to study the theory and practice of Human Services. Impact of the aging process on the individual, family, and community is emphasized. Legal mandates, community organizing, needs assessment, problem solving, information management, social policy, and professional employment will be reviewed. Placement in a contracted cooperating community agency will average twelve hours weekly. Qualified agency personnel will supervise and evaluate practicum. The student will progress from direct to indirect supervision. Faculty will monitor practicum through scheduled site visits. Weekly campus seminar, facilitating sharing of practicum experience, affords the student guidance in evaluating personal and professional goals. PREREQUISITES: Satisfactory completion of AM 102, AM 202. Enrollment in AM 303, AM 304, AM 305, AM 306.

Offered Fall Semester

AT 202—GERONTOLOGY 2 7 credits
Through coordinated academic studies and supervised practicum, the student continues to concentrate on the practice of gerontology. Advocacy, agency linkages, rehabilitation, prevention, consultation, changing family structures and programmed intervention are studied. Supervised practicum, averaging twelve hours weekly, continues with the contracted cooperating community agency defined in Human Services 3. Qualified agency personnel will supervise and evaluate practicum. The student is expected to complete practicum assignments with indirect supervision. Faculty continue to monitor practicum through scheduled site visits. Through the weekly campus seminar, the student will share practicum experience, evaluate competency develoment, and define realistic post graduation plans. PREREQUISITES: Satisfactory completion of AM 102, AM 202, AM 302, AM 303, AM 304, AM 305 AM 306. Enrollment in AM 403, AM 404.

Offered Spring Semester

Humanities
(*See* Art, English, Foreign Languages, Music, Philosophy)

Industrial Engineering Technology
Option to Mechanical Technology

FB 110—PRODUCTION PROCESSES 3 credits
The course is designed to provide the student with knowledge of the various manufacturing processes, castings, forgings, powder metallurgy, plastics, etc., primary working processes, metal shearing, forming, welding and allied processes are discussed. Common metal cutting and removal operations are studied, along with feeds, speeds, finishes and tolerances.

Offered Fall Semester

FB 120—ENGINEERING GRAPHICS 371 2 credits
Basic drawing skills applied to Engineering Drawings with emphasis on blueprint reading abilities. Included are electronic and electrical drafting symbols and standards, piping drawings and standards, structural and architectural drawings and standards.

Offered Fall Semester

FB 130—BLUEPRINT READING 2 credits
Fundamental theory and practice of blueprint reading and tolerance application.

Offered Fall Semester

FB 230—INTRODUCTION TO CAD (COMPUTER-AIDED DRAFTING) 3 credits
The purpose of this course is to acquaint the student with the terminology, capabilities, and operation of computer-aided drafting hardware and software. The student will be given graphical laboratory problems to create work files and develop libraries and elementary drawings utilizing lines, rectangles, circles, arcs, and ellipses. Scaling, rotations, translations, and projections will also be covered. PREREQUISITE: FD 110 or FB 120 or equivalent.

Offered Spring Semester

FB 235—INTRODUCTION TO COMPUTERIZED NUMERICAL CONTROL 3 credits
This introductory course is designed to provide an overview of the history and economics of computerized numerically controlled machine tool equipment, such as milling equipment and lathes. A large portion of this course will familiarize the student with the important fundamentals of programming these types of machine tools. PREREQUISITE: FA 110

Offered Spring Semester

FB 310—INDUSTRIAL MATERIALS 3 credits
An introduction to engineering materials and their properties. Emphasis is placed on the factors that determine material properties and the process by which these properties can be changed in a controlled manner. Materials covered include steel, cast iron, non-ferrous metals and alloys, plastics, rubber, and some other non-metalics.

Offered Fall Semester

FB 320—STRENGTH OF MATERIALS 4 credits
A study of forces and force systems and their applications to materials. Stress and strain produced by the application of forces on beams, columns, trusses and riveted and welded sections are studied for simple tension and shear. Laboratory experiments provide experience in measuring and calculating stresses produced for conditions of tension, compression, shear, bending and torsion. PREREQUISITE: MM 101, MM 103.

Offered Fall Semester

FB 325—COMPUTER SOFTWARE APPLICATIONS 4 credits
This course is designed to acquaint the student with the operations of a personal computer, using various types of software for Computer-Aided Drafting/Computer-Aided Manufacturing/ Computer-Integrated Manufacturing/Computer-Aided Engineering. The student will become familiar with using spreadsheets, database, statistical packages, and other software for various industrial and manufacturing problems related to industrial environments.

FB 330—QUALITY CONTROL 4 credits
A one-semester course designed to familiarize the student with the various aspects of statistics and how they can be used in control charts for production of products. The student will become familiar with both grouped and ungrouped data, distributions, means and standard deviations, and the use of statistical inference on comparing samples to populations. The various types of control charts will be studied and evaluated, with their use in controlled production.

Offered Fall Semester

FB 335—CAD 1 3 credits
This course is a continuation of Introduction to Computer-Aided Drafting, FB 230. The objectives of Intro to CAD will be reviewed, followed by studying such topics as sectioning, auxilliary views, assemblies, drawing revisions, and plotter operations. PREREQUISITE: FB 230

Offered Fall Semester

FB 340—MANUFACTURING PLANNING AND CONTROL 1 4 credits
General consideration is given to various phases and elements of production control which are later applied to continuous process companies and typical job shops. Several problem cases serve as a basis for classroom discussion. In addition to a general introduction involving various types of manufacturing plants and their respective products, the course includes a study of the elements that contribute to a successful production control program. Production forecasting, product development, control of materials, routing, scheduling, dispatching and follow-up are studied in sequence in terms of their significance and their relationship to production control. The course is based upon the idea that there is no standard production control procedure applicable to all manufacturing companies, but that there is a correct production control procedure which can be developed for any company, large or small.

Offered Spring Semester

FB 420—FLUID POWER 4 credits
The basic theory of both hydraulics and pneumatics is developed in relation to either driving or controlling industrial machinery. Fluid power equipment is discussed from the standpoint of application. Skill is developed in layout and understanding of fluid power circuits. PREREQUISITE: MM 101 - MM 103.

Offered Spring Semester

FB 425—STATISTICAL PROCESS CONTROL 4 credits
A one-semester course designed to familiarize the student with quality control concepts, emphasizing the various types of control charts, using a statistical software package. The utilization of the computer with reference to process control techniques in detail and how the techniques relate to controlling manufacturing operations and assuring quality of the highest standards will be studied. PREREQUISITE: FB 325

FB 430—ENGINEERING ECONOMY 3 credits
This course is designed to acquaint the student with the various alternatives in any given situation. The student will become familiar with how to evaluate alternate engineering situations. The effects of capital, how to determine which way to go, break-even analysis, costs associated with money, equipment, depreciation and tax benefits and the various types of costs associated with business.

Offered Spring Semester

FB 435—CAD 2 3 credits
Computer-Aided Drafting 2 further explores this new drafting technology by exploring isometric (3D) drawing with CAD equipment, use of colors, layering, shading, and other drawing enhancement features. PREREQUISITE: FB 335.

Offered Spring Semester

FB 440—MANUFACTURING PLANNING AND CONTROL 2 4 credits
A course designed to acquaint the student with both job-shop and repetitive manufacturing techniques. These will utilize the techniques of charts, MRP planning, line balancing and machine balancing, and the aspects of the application of learning curves. The new concept of just-in-time will also be analyzed.

Offered Spring Semester

FB 450—OPERATIONS MANAGEMENT 3 credits
A one-semester course enabling the student to format all the various functions of manufacturing together (production control, plant layout, work simplification, material planning, and quality control) into one, and evaluate the criteria of each to then determine the best alternative.

Offered Spring Semester

FB 460—MANUFACTURING LAB 3 credits
A course designed for the student to relate all aspects of manufacturing together in a given situation, in order to evaluate, analyze, and make recommendations as to the best possible solution to the problem at hand.

Offered Spring Semester

Landscape/Plant Science Technology

GL 110—TREES IN THE LANDSCAPE 3 credits
A course dealing in tree identification & use, as related to landscape work. Important types, both native and introduced, are discussed. Limited to trees generally hardy in the New England area. Representative types are discussed during laboratory sessions. Lectures deal with general topics concerning tree use. Field trips, both on and off campus, are used to view the trees discussed. One hour lecture, two two-hour labs.

Offered Fall Semester

GL 120—PRINCIPLES OF HORTICULTURE 3 credits
A basic course in general horticulture, introducing the student to the fundamentals of soil study and use, insect and disease control and plant production techniques. The lectures cover the theoretical aspects of horticulture and the laboratories used for field trips and practical work. Two one-hour lectures, one three-hour lab.

Offered Fall Semester

GL 210—PRESENTATION TECHNIQUES 3 credits
A course in mechanical drafting, stressing the media and techniques commonly used in the preparation of landscape plans. The use of instruments, lettering and line techniques is covered first, followed by the development of isometric and perspective drawings. Working in 3-dimensions is stressed, so that the student may best visualize spatial relationships in future landscape design courses. Three two-hour labs.

Offered Spring Semester

GL 220—TURF MANAGEMENT 3 credits
The study and identification of turf grasses as used in the New England area. Much emphasis is placed upon the best use of the types involved. Topics in the lectures include soil and fertilization requirements, drainage and irrigation, best turf types, grass and seed identification, maintenance and renovation, and disease and insect control. The laboratories are involved in soil testing, turf growing, maintenance techniques and field trips. Two hour lecture, one three-hour lab.

Offered Spring Semester

GL 310—SHRUBS IN THE LANDSCAPE 3 credits
A continuation of Botany 2, covering the identification and use of the commonly used native and introduced shrubs and vines in this area. Emphasis is placed upon the best use of the types involved. Lectures are concerned with utilization of plant features such as flowers and

fruits and with effects of the environment on the plants discussed. Laboratories are used for the discussion of specific plants. One hour lecture, two two-hour labs.

Offered Fall Semester

GL 320—ARBORICULTURE 3 credits

A course dealing with the basic aspects of arboriculture. The lectures are concerned with tree growth and maintenance and the laboratories are used to instruct in tree climbing, pruning, and repair and feeding techniques. Two hour lecture, one three-hour laboratory.

Offered Fall Semester

GL 330—LANDSCAPE DESIGN 1 3 credits

A course in residential landscape design stressing basic design techniques and elements. Topics covered in lecture are line, shape, form, texture, pattern, color, the processes of design, the development of outdoor spaces and design presentation. Design problems in lab deal with entry ways, driveways, outdoor living areas, play areas, private gardens and the orientation of structures on the site. PREREQUISITE: GL 210. One one-hour lecture; two two-hour labs.

Offered Fall Semester

GL 350—LANDSCAPE OPERATIONS (PLANTING) 3 credits

This course deals with the principles involved in estimating, carrying out and maintaining landscape work. The lectures are used to introduce and discuss the work areas involved and laboratory time spent in moving and planting trees and shrubs, estimating work and the use of work. Two hour lecture, one three-hour laboratory.

Offered Fall Semester

GL 410—PLANT PROPAGATION 3 credits

A course dealing with the procedures used in propagating and growing plant materials. Lectures deal with the theoretical aspects of growing and the laboratories are devoted to greenhouse and field work. Several field trips are taken to commercial nursery operations in the area. Two hour lecture, one three-hour lab.

Offered Spring Semester

GL 420—LANDSCAPE DESIGN 2 3 credits

A continuation of Landscape Design 1 stressing presentation and analysis. The areas dealt with are urban shopping and business spaces, small office buildings, schools and playgrounds, and parking areas. PREREQUISITE: GL 330. One one-hour lecture, two two-hour labs.

Offered Spring Semester

GL 430—EARTH FORMS & STRUCTURES 3 credits

A study of the equipment, materials and methods used in constructing landscape features such as walls, walks, drives, fences and terraces. Considerable field work is involved, in which the students lay out and construct features as mentioned above. Two hour lecture, one three-hour laboratory. PREREQUISITE: GC 305 Surveying 721.

Offered Spring Semester

GL 450—ENTOMOLOGY/DISEASE CONTROL 3 credits

An introduction to the study of insects and diseases affecting ornamental plants. Both identification and eradication of common plant pests will be discussed. Cultural & biological means of control, rather than the use of chemicals will be stressed. Two-hour lecture, one three-hour lab.

Offered Spring Semester

Laser Electro-Optics Technology

EL 320—INTRODUCTION TO LASERS 4 credits

This course is made up of three one hour lecture sessions and a three hour laboratory session. The course begins with an introduction to light, the atom, emission processes, and stimulated emission of radiation. Next, laser output characteristics and modification, materials, components and industrial laser types are discussed in detail. Finally, a description of major industrial laser applications is given. Safety and laboratory procedures are also cov-

ered. The lab section will loosely follow the lectures and some projects are constructed. Senior standing.

Offered Fall Semester

EL 330—GEOMETRICAL OPTICS 4 credits

This course is the first of a two-semester sequence covering basic optical theory and components. Each course consists of three one-hour lecture sessions and a three-hour lab. Geometrical optics deals with the rectilinear propagation of light and the elementary treatment of image formation, lenses, mirrors, prisms, fiber optics, ray tracing, aberrations, optical system design, and optical instruments. The laboratory components and procedures. PREREQUISITE: Senior standing. *Offered Fall Semester*

EL 410—LASER PROJECTS 4 credits

Students working in groups will construct one of the projects listed below under the guidance of the instructor. Each student is required to maintain a laboratory notebook on specific work performed. The notebook will be evaluated weekly by the instructor. Also, lectures on topics such as electronic layout and assembly and error and statistical evaluation of data help to round out the student's knowledge of laboratory procedures. Projects include Computer Assisted Spectraradiometer, CO2 Laser, Nd:YAG laser, Optical Communications, Holography, Vacuum Evaporation Techniques, and others. Senior standing and EL 320, EL 330.

Offered Spring Semester

EL 420—WAVE OPTICS 4 credits

Three major topics are studied in this course: wave optics, properties of light and matter, and the optics of transformations. The majority of the course is dedicated to wave optics and the study of diffraction and interference. In dealing with the properties of light and matter, polarization and optical boundaries are discussed. The optics of transformations deals with Fourier transform spectroscopy, transfer functions, optical data processing, and holography. Laboratory exercises will closely parallel classroom discussions and should help bridge the gap between theory and practical use of the concepts expressed. Senior standing and EL 320, EL 330. *Offered Spring Semester*

Law Enforcement/Criminal Justice

NL 100—CRIMINAL PROCEDURES 1 3 credits

To familiarize the student planning a career in law enforcement with the Constitutional requirements and safeguards attendant throughout the criminal process, from investigation through arrest, interrogation, indictment, trial, and sentencing. Included is an in-depth review of the Bill of Rights and its influence in modern society. Heavy emphasis is placed on actual case study and review of recent Supreme Court decisions, especially as related to practical situations and problems confronting Law Enforcement personnel. Selected readings focus on practical application to Constitutional principles to practical situations.

Offered Fall Semester

NL 110—INTRODUCTION TO CRIMINAL JUSTICE 3 credits

An introduction and basic survey of criminal justice and the court systems, both state and federal. The course explores the concept of bail, the functions and roles of the Judge, Prosecutor, Grand Jury, Defense Attorney, and Public Defenders, and sentencing in the ocurts. Also examined are the functions and objectives of the Probation Officer and Parole Office, especially as related to rehabilitation of the offender. The role of the policeman in modern society is discussed and explored in detail. *Offered Fall Semester*

NL 200—CRIMINAL PROCEDURES 2 3 credits

Continuation of Criminal Procedures 1 NL 100. PREREQUISITE: Criminal Procedures 1 NL 100. *Offered Spring Semester*

NL 230—CRIMINAL EVIDENCE 3 credits

An analytical study of the rules of evidence, including such general areas of Relevancy and Materiality, Hearsay Evidence, Introduction of Writings, Competency and Privilege, and Parole Evidence Rule. Probative Matter legally presented at the trial of a criminal case is given special attention. Also examined are rules concerning the admission of evidence in such specific areas as Search and Seizure, Pre-Trial Identification, admission of confessions,

electronic surveillance, presumptions and privileges. PREREQUISITES: Intro to Criminal Justice NL 110 or permission of Department Chairperson. *Offered Spring Semester*

NL 300—CRIMINAL LAW 1 3 credits
This course explores and examines the substantive law of crimes, including the general and special areas of Criminal Laws. Of special interest is a survey of crimes against the person, crimes against property, parties to crimes, defenses based on justification, and the nature of the criminal act and conduct. Emphasis is placed on analysis of elements of particular crimes, offenses, and punishments through an examination of the statutes and case example. PREREQUISITE: Intro to Criminal Justice NL 110 or permission of the Department Chairperson. *Offered Fall Semester*

NL 340—CRIMINAL INVESTIGATION 3 credits
An introduction to field investigation, including conduct at the scene of the crime, interviewing and interrogation of witnesses and suspects, the use of informants, and techniques of surveillance. Emphasis is placed on special investigative techniques and on court procedures of the police case. *Offered Fall Semester*

NL 400—CRIMINAL LAW 2 3 credits
Continuation of Criminal Law 1 NL 300. PREREQUISITES: Criminal Law 1 NL 300 and Intro. to Criminal Justice NL 110 or permission of Department Chairperson.
Offered Spring Semester

NL 405—CURRENT ISSUES IN LAW ENFORCEMENT 3 credits
This course explores current issues in the field of Law Enforcement and Corrections. Included as major topics to be studied are the causes, effects, and treatment of drug addiction in society, the correctional system generally in America, work release programs, prisoners' rights, women's rights, the philosophy of the juvenile justice system, victimology, crime in the society, and a discussion of rehabilitation and reintroduction of the offender in contemporary society. These issues will be explored from the perspective of the social sciences and their sociological context.

NL 411—JUVENILE PROCEDURES 3 credits
This course examines the role of the police in delinquency prevention and the make-up of Youth Service Division within the Police Department. Emphasis is on theory, administration, control, treatment, confinement, community resources, relationships with the public and the juvenile court.

NL 412—LAW ENFORCEMENT PHOTOGRAPHY 3 credits
The objective of this course is to give police officers an introduction to photography in law enforcement and police work generally. Various photographic techniques are illustrated in relation to their possible use in several areas of law enforcement. Emphasis is on photography as a valuable tool in law enforcement.

NL 413—PAROLE, PROBATION & REHABILITATION 3 credits
This course familiarizes the student planning a career in Law Enforcement with laws, rules, and regulations attendant with Probation and Parole and Corrections, as well as with the basic concepts and mechanics of each. The course also examines the organizational structure of Probation, the Parole Board, and the Department of Correction in Massachusetts. Theories employed in the sentencing and rehabilitation of different kinds of offenders will be studied, along with an analysis of rehabilitation of the offender in the community versus in penal institutions. Utilization and effectiveness of work-release programs, half-way houses and treatment centers for drug offenders and alcoholics will be considered.

NL 415—POLICE/COMMUNITY RELATIONS 3 credits
This course will examine the relationship between police and the community they serve. This relationship has often been marked by hostility and lack of confidence in the police, particularly in minority group areas. How this hostility is reflected in day-to-day police operations, recruiting, morale and safety of the individual officer will be examined through the course readings, lectures and discussion. The response of police to these pressures will also be examined. The problem of police ethics and the role this play in developing a police image in the community will be explored. What part police/press relations play in the development of police/community relations will be reviewed through actual police-related news stories. The ultimate question of freedom versus authority, of the police state versus constitutional democracy, will be examined in relationship to the course reading and discussions.

NL 450—LAW ENFORCEMENT MANAGEMENT & PLANNING 3 credits
Consideration of police problems at the administrative level, including coordination of all branches of a police department. An evaluation of line, staff, and auxiliary functions and the interrelationship of each. The purpose, need, and scope of planning in the police operation, including staffing, correction of data and use of data processing.

Offered Spring Semester

NL 475—LAW ENFORCEMENT SEMINAR 3 credits
This course reviews and correlates all major areas of study covered in the Law Enforcement/ Criminal Justice curriculum. Through general discussion and selected readings, the course explores and re-examines all major areas in Law Enforcement with the aim of consolidating previously attained knowledge and skills. The course seeks to provide the student with a distinct perception, overview and evaluation of the Criminal Justice process, including the basic trial format and courtroom procedure.

Legal Office Administration
(*See* Office Administration)

Management
(*See* Business Administration)

Marketing
(*See* Business Administration)

Math and Natural Sciences
(*See* Engineering Transfer, Computer Science Transfer, Biological Sciences, Chemistry, Mathematics, Physics)

Mathematics

MM 071—MATHEMATICS 1 credit
The concept of whole numbers and the place value system. Addition, subtraction, multiplication and division of whole numbers. Exponents, perfect square roots, primes, composites and prime factoring.

MM 072—MATHEMATICS 1 credit
Fractions and decimals. Addition, subtraction, multiplication and division of both fractions and decimals. Reducing fractions and converting fractions to decimals. PREREQUISITE: MM 071 or its equivalent.

MM 073—MATHEMATICS 1 credit
Changing percentage to fractions and fractions to percentage. The solution of the various types of percentage problems. An introduction to denominate numerals. Elements of plane geometry. PREREQUISITE: MM 072 or its equivalent.

MM 074—MATEMATICAS 1 credito
Course contents same as MM 071. El concepto denumeros enteros positivos, el cero y el sistema de lugar, para el valor. Suma, resta, multiplication & division de numerous enteros positivos. Exponentes cuadrado perfector, raiz cuadrada, numerous primos, numeros compuestos & factorizacion prima.

MM 075—MATEMATICAS 1 credito
Course contents same as MM 072. Fraciones, & decimales. Suma, resta, multiplication & division de ambos, decimales & fraciones. Reduciendo fraciones & convirtiendo fraciones a decimales. PREREQUISITO: MM 074 o su equivalente.

MM 076—MATEMATICAS 1 credito
Course contents same as MM 073. Camblar porciento a fracionies & fraciones a prociento. La solucion de varios tipos de problemas de porcientos. Una introducion a numerales denominados. Geometria plana. PREREQUISITO: MM 075 o su equivalente.

MM 077—MATHEMATICS FOR NURSING AND HEALTH 1 credit
Using proportions to convert measures in metrics and apothecary system. Calculating drug doses not available in units prescribed. Calculating drug doses of extremely small units, insulin dosages, infant and child dosage. Preparing solutions from powders and liquids.

MM 078—MATHEMATICS 3 credits
Same course content as MM 071, MM 072, and MM 073, with the exception that this course is taught using a lecture rather than an audio-tutorial approach. PREREQUISITE: none

MM 079—MATHEMATICS 4 credits
Topics include basic operations with whole numbers, fractions and decimals. Exponents, primes, composites, and percents are also covered. The course is composed of three hours of lecture and a three-hour computer laboratory in which practical applications are addressed.

MM 081—MATHEMATICS 1 credit
The relationship of whole numbers to sets, numerals to numbers. Binary operations of addition, subtraction, multiplication and division. Solutions to simple linear equations. Five fundamental properties of equations. Properties of exponents. PREREQUISITE: MM 073 or its equivalent.

MM 082—MATHEMATICS 1 credit
The set to integers. Addition, subtraction, multiplication and division of integers. Operations with variable expressions. Introduction to solving linear equations. PREREQUISITE: MM 081.

MM 083—MATHEMATICS 1 credit
Rational, irrational and real numbers. Properties of fractional expressions. Multiplication and division, addition and subtraction of first degree fractional expressions. PREREQUISITE: MM 082.

MM 084—MATEMATICAS 1 Credito
Course contents same as MM 081. La relacion de los numeros enteros positivos & el cero con conjuntos, numerales & numeros. Operciones binarias de suma, resta, multiplication & division. Soluciones de ecuaciones lineares simples. Propledades de los numeros enteros positivos & el cero.

MM 085—MATEMATICAS 1 credito
Course contents same as MM 082. Suma, resta, multiplicacion & division de los numeros enteros. Simplificaciones de expresiones numerales conteniendo enteros, valores absolutos & exponentes. Simplificacion de expressiones variables. PREREQUISITO: MM 084 o su equivalente.

MM 086—MATEMATICAS 1 credito
Course contents same as MM 083. Propiedades & axiomas de los numeros reales. Suma, resta, multiplicacion & division de expressiones fracionales. PREREQUISITE: MM 085 o su equivalente.

MM 087—MATHEMATICS 3 credits
Same course content as MM 081, MM 082, MM 083, except courses are taught on a lecture basis rather than an audio-tutorial basis.

MM 091—MATHEMATICS 1 credit
Multiplication and division of algebraic expressions. Factoring. Solving linear quadratic equations. Operations with fractional expressions. Solving fractional and absolute value equations. Solving inequalities. PREREQUISITE: MM 083 or its equivalent

MM 092—MATHEMATICS 1 credit
Negative exponents and scientific notation. Introduction to radicals and fractional exponents. Operations with radical expressions. Using the quadratic formula and solving equations with radical expressions. PREREQUISITE: MM 091.

MM 093—MATHEMATICS 1 credit
The concept of an ordered pair and the real number plane. Methods of graphic linear, quadratic and absolute value equations. Systems of linear equations solved analytically and graphically. Functions and relations are defined and applied. PREREQUISITE: MM 092 or its equivalent.

MM 097—MATHEMATICS 3 credits
Same course content as MM 091, MM 092, and MM 093, except courses are taught on a lecture basis rather than an audio-tutorial basis.

MM 100—MATHEMATICS 1-3 credits
There are 15 audio-tutorial mathematics classes in the MM 100 Mathematics series. They are:

MM 071	MM 081	MM 091	MM 101	MM 105
MM 072	MM 082	MM 092	MM 102	MM 106
MM 073	MM 083	MM 093	MM 103	MM 107

A complete description of these audio-tutorial mathematics courses is available in the "Student Information Booklet." Copies of this booklet are available without charge by writing to: Chairman, Mathematics Department, STCC, One Armory Square, Springfield, MA 01105.

MM 101—MATHEMATICS 1 credit
Angles and their measure, Pythagorean theorem, right triangle trigonometry, laws of sines and consines, vectors. PREREQUISITE: MM 093 or equivalent.

MM 102—MATHEMATICS 1 credit
Introduction to sets, graphs and field properties, factoring, algebraic fractions, exponents and radicals. PREREQUISITE: MM 101.

MM 103—MATHEMATICS 1 credit
Solution sets of linear and quadratic equations, relations and functions, both linear and quadratic. PREREQUISITE: MM 102.

MM 104—MATHEMATICS 3 credits
Same course content as MM 101, MM 102, MM 103, except courses are taught on a lecture basis rather than an audio-tutorial basis.

MM 105—MATHEMATICS 1 credit
Properties and applications of special functions and relations, conic sections variation, inverse functions, exponential functions. PREREQUISITE: MM 103 or its equivalent.

MM 106—MATHEMATICS 1 credit
Logarithms, solution of equations involving exponential expressions, radicals, and logarithms, binomial theorem, sequences and series. PREREQUISITE: MM 105.

MM 107—MATHEMATICS 1 credit
Complex numbers, topics in analytical trigonometry. PREREQUISITE: MM 106.

MM 108—MATHEMATICS 3 credits
Same course content as MM 105, MM 106, and MM 107, except courses are taught on a lecture basis rather than an audio-tutorial basis.

MM 120—CONTEMPORARY MATHEMATICS 1 3 credits
Problem solving. Hand Calculators. Metric System. Percents. Ratio and Proportion. Applications of Area and Volume, Pythagorean Theorem, Taxes, Credit, Installment Buying. PREREQUISITE: MM 083.

MM 122—APPLIED MATHEMATICS 1 3 credits
Review of algebra, elementary matrix operations, solving systems of linear equations, graphing linear equations and inequalities, linear programming, probability, simple and compound events, sample spaces, independent and dependent events, conditional probability, Bayes' theorem, Bernoulli trials. PREREQUISITE: MM 093 or equivalent.

MM 130—BUSINESS MATH 3 credits
Topics include whole numbers, fractions, decimals, percentages, measurements, statistics, charts and graphs, simple interest, compound interest, consumer credit, insurance, banking records, payroll, depreciation, taxes, and investments. PREREQUISTIE: None.

MM 132—TECHNICAL MATHEMATICS 1 4 credits
Introduction to calculators, scientific notation, significant figures, functions and graphs, right triangle trigonometry, vectors, solution of linear and quadratic equations, systems of linear equations, determinants, factoring, algebraic functions, laws of sines and cosines, graphs of trigonometric functions, exponents and radicals. PREREQUISITE: MM 093 or equivalent.

MM 137—INDEPENDENT STUDY OF MATHEMATICS 1, 2, 3, or 4 credits
Independent study of special topics in mathematics under the direction of an instructor. PREREQUISITE: Permission of the Department Chairperson.

MM 140—STATISTICS AND QUALITY CONTROL 4 credits
The introduction to the numerous quality control procedures and statistical techniques used in a clinical laboratory. This course addresses terminology, notation, and statistical concepts and their application in quality control. PREREQUISITE: MM 093 or equivalent.

MM 142—STATISTICS 1 3 credits
Descriptive methods of collecting, organizing, analyzing, and presenting categorical and numerical data. Elementary probability theory and distributions, basic components of sampling theory, estimation and hypothesis testing. PREREQUISITE: MM 093 or equivalent.

MM 143—BUSINESS STATISTICS 1 3 credits
Descriptive methods of collecting, organizing, analyzing, interpreting, and presenting numerical data are examined. Elementary probability concepts and distributions, sample distributions, and statistical inference are emphasized. PREREQUISITE: MM 093.

MM 150—PRE-CALCULUS 1 4 credits
This course is designed to provide the intensive preparation necessary for students who intend to enroll in the engineering calculus sequence of courses. Topics include sets, real numbers, order, absolute value, functions, rational function, inverse functions, systems of equations, determinants, and analytic geometry of the straight line and conic sections. PREREQUISITES: Math MM 091 - MM 093 or its equivalent.

MM 155—CALCULUS 1 4 credits
The straight line; conic sections; inequalities; functions and graphs; limits and continuity; differentiation of algebraic functions; maxima/minima theory; related rates and differentials. Introduction to indefinite and definite integration of algebraic functions, arc length, volumes by disk and shell methods, surface of revolution, moments and centroids. PREREQUISITE: MM 108 or its equivalent.

MM 157—CALCULUS FOR BUSINESS, LIFE, AND SOCIAL SCIENCES 1 3 credits
Introduction to calculus with applications to business, life, and social sciences. Functions and graphs, limits, the derivative, techniques of differentiation, curve sketching, maximum/minimum problems, exponential and logarithmic functions, exponential growth and decay. PREREQUISITES: MM 122, MM 132, MM 150, or MM 103.

MM 159—MATHEMATICS FOR A TECHNICAL SOCIETY 1 3 credits
This is the first course in a sequence designed to address the needs of a Liberal Arts/General Studies transfer student. This sequence stresses the connection between contemporary mathematics and modern society. Topics will be selected from the area of social choice, geometry, management science, probability and statistics, and computer science. PREREQUISITES: MM 093 or equivalent.

MM 220—CONTEMPORARY MATHEMATICS 2 3 credits
Scientific graphs, slopes and lines. Computing and probability. Introduction to statistical concepts. Money growth, home ownership, insurance. PREREQUISITE: MM 120.

MM 222—APPLIED MATHEMATICS 2 3 credits
Limits of a function; average and exact rates of change; derivatives of functions including products, quotients, and composite functions; relations and absolute maxima and minima; antiderivatives; definite integrals; applications to graphical and area-type problems with emphasis on business and economics. PREREQUISITE: MM 122.

MM 232—TECHNICAL MATHEMATICS 2 4 credits
Complex numbers, logarithms, systems of nonlinear equations,
inequalities, variation, progressions, trigonometric identities and equations, inverse trigonometric functions, analytical geometry, introduction to differential and integral calculus. PREREQUISITE: MM 132.

MM 237—INDEPENDENT STUDY OF MATHEMATICS 1, 2, 3, or 4 credits
Continuation of MM 137. PREREQUISITE: MM 137 Permission of the Department Chairperson.

MM 242—STATISTICS 2 3 credits
Following the pattern of MM 242, the student will continue with samples to estimate population characteristics; hypothesis testing, confidence intervals, + - distribution. Approximate tests; Chi-square distribution multinomial data. Regression and correlation. PREREQUISITE: MM 142.

MM 243—BUSINESS STATISTICS 2 3 credits
This course is designed so that the student gains proficiency in using statistical techniques as a decision-making tool in the major areas of business. Areas of emphasis are: statistical inference, variance, correlation and regression analysis, chi-square distribution, and non-parametric applications. PREREQUISITE: MM 143.

MM 250—PRE-CALCULUS 2 4 credits
A continuation of Pre-Calculus 1 with an emphasis on transcendental functions. Topics include exponential and logarithmic functions, sequences and series, analytical trigonometry, vectors, complex numbers, polar coordinates, and conic sections. PREREQUISITE: MM 150

MM 255—CALCULUS 2 4 credits
Differentiation and integration of transcendental functions; techniques of integration including trigonometric substitutions, integration by parts, methods of partial fractions and completing the square; hyperbolic functions, L'Hospital's Rule, improper integrals, infinite sequences and series, power series, Taylor series. PREREQUISITE: MM 155 or its equivalent.

MM 257—CALCULUS FOR BUSINESS, LIFE, AND SOCIAL SCIENCES 2 3 credits
Continuation of MM 157. Elementary techniques of integration, introduction to differential equations, applications to several mathematical models in business, life, and social sciences, and partial derivatives. PREREQUISITE: MM 157

MM 259—MATHEMATICS FOR A TECHNICAL SOCIETY 2 3 credits
This is the second course in a sequence for the Liberal Arts/General Studies transfer student. Applications will be selected from the areas of social choice, probability and statistics, computer science, and management science. PREREQUISITE: MM 159.

MM 345—STATISTICAL ANALYSIS 4 credits
A study of the application of computer programming to statistical procedures employed in the analysis and interpretation of categorical and numerical data. Topics include: introduction to descriptive and inferential statistics; hypothesis testing; parametric and non-parametric tests such as correlation, regression, t-test, ANVOA, and factor analysis. CO-REQUISITE: MM 355.

MM 346—STATISTICAL ANALYSIS LAB 1 credit
This is a one semester hour computer laboratory in statistics utilizing on-campus computers and APL. CO-REQUISITE: MM 345.

MM 355—CALCULUS 3 4 credits
Topics include polar coordinates, multivariable calculus: 3-dimensional coordinate systems and surfaces from Rn to Rm; limits and continuity; partial differentiation; chain rule; the gradient; directional derivatives; maxima and minima; multiple integration and applications; vector calculus: line integrals, surface integrals; Green's Theorem; Divergence Theorem; Stroke's Theorem. PREREQUISITE: MM 255 or its equivalent.

MM 375—DISCRETE MATHEMATICAL STRUCTURES 1 3 credits
Fundamentals of logic, set theory, relations, partially ordered sets, Boolean algebra, induction, recursion, algorithmic design, partitions, counting, permutations and combinations. PREREQUISITE: MM 150.

MM 436—ENGINEERING MATHEMATICS 3 credits
Review of Power series solutions of ordinary differential equations; Bessel Functions; Fourier series; Strum-Liouville systems; Laplace transformations; introduction to elementary partial differential equations and applications; introduction to complex variables. PREREQUISITE: MM 455 or permission of instructor.

MM 439—LINEAR ALGEBRA 3 credits
Geometric vectors; vector spaces, systems of linear equations; inner product spaces; linear transformations and matrices; determinants; eigenvalues and eigenvectors. PREREQUISITE: Calculus 2 MM 255 or permission of instructor.

MM 440—LINEAR ALGEBRA LABORATORY 1 credit
This is a one semester hour computer laboratory in linear algebra utilizing on-campus computers and APL. PREREQUISITE: MM 255, CO-REQUISITE: MM 439.

MM 455—DIFFERENTIAL EQUATIONS 4 credits
Classical methods of solution of first order and linear higher order ordinary differential equations. LaPlace Transform and Power Series solutions of linear ordinary differential equations. Matrix solutions to linear systems of ordinary differential equations. Numerical methods of solution of first order ordinary differential equations using the digital computer. PREREQUISITE: MM 355 (or MM 255 with permission of instructor)

MM 475—DISCRETE MATHEMATICAL STRUCTURES 2 3 credits
Trees and languages, monoids, semi-groups, finite-state automata, product and quotient groups, machines and regular expressions, coding of binary information and error detection, indirected and directed graphs, Karnaugh maps, switching theory, homomorphisms, isomorphisms, probability. PREREQUISITE: MM 375.

MN 100—COMPUTERS AND SOCIETY 4 credits
This interdisciplinary science-sociology, lecture and laboratory course is designed to introduce the liberal arts student to the pervasive use of computers in today's world. In the laboratory, students will have hands-on experience with personal microcomputers. They will use not only languages, but word processing, file manipulation, music synthesis, and graphics. The lectures will explore the impact computers are exerting on our social institutions; the myriad ways computers are changing the ways we work and ultimately the way we think; and projections of changes computers are expected to bring to our professional and personal life styles.

Medical Assistant

AA 100—MEDICAL ASSISTANT TECHNIQUES 1 4 credits
Presents theory and planned student activity in assisting with physical exam, taking vital signs and health history, medical asepsis, sterile technique, and selected diagnostic and therapeutic procedures.

Offered Fall Semester

AA 101—MEDICAL TERMINOLOGY 3 credits
This course is designed to furnish the basic tools for building a medical vocabulary and to acquaint the reader with medical terms as they pertain to anatomy, physiology and disease. Emphasis will be placed on the most commonly used combinations of forms, prefixes and suffixes that make up the language of medicine. A working knowledge of medical terminology is desirable for anyone entering one of the Allied Health fields.

Offered Fall & Spring Semester

AA 111—HUMAN SEXUALITY: YESTERDAY, TODAY AND TOMORROW 1 credit
This module offers the opportunity for the student to acknowledge his/her feelings and thoughts, examine attitudes, beliefs, cultural patterns, and clarify his/her own value system as it relates to Human Sexuality, in an arena of nonjudgmental caring and concern. Impact of heredity/environment on one's sense of self-esteem will be examined.

Offered Spring and Fall Semesters

AA 112—LIVING AND DYING: VALUES AND CHOICES 1 credit
The quality of life with emphasis on the student's values and choices will be explored and shared along with the impact of *Life's Losses* including divorce, separations, death and bereavement. This seminar module will examine the power and strength of the family unit and network support during the times of crisis.

Offered Spring and Fall Semesters

AA 113—INTRODUCTION TO HEALTH & HUMAN SERVICES 1 credit
An introductory module for Allied Health students that will explore the professions through lecture and discussion on ethical conduct, communication skills, stress reduction, value clarification, holistic health and professionalism will be examined.

Offered Spring and Fall Semesters

AA 114—CARDIO-PULMONARY RESUSCITATION 0 credit
This Red Cross modular course is designed to recertify for emergency first aid for respiratory failure and cardiac arrest victims of all ages. PREREQUISITES: AA 200, AA 210, or AA 211, and permission of department chairperson.

AA 116—PRINCIPLES AND PRACTICE OF PHLEBOTOMY 1 credit
This module is designed to train and educate students in the procedure of phlebotomy/ venipuncture. Incorporated into the class will be a lecture and laboratory practice sessions. PREREQUISITES: MB 132 and MB 232, and permission of the Department Chairperson.

AA 118—POSITIVE LIVING 3 credits
This course offering will encompass positive health habits and stress reduction. Through lecture and discussion, cardio-vascular fitness, nutrition, stress and stress reduction techniques will be covered. This course will also include an aerobic exercise lab in which principles learned in class will be practiced. 2 Lectures, 2 Labs.

Offered Spring Semester

AA 119—APPLIED LEGAL CONCEPTS (MEDICAL ASSISTANT) 1 credit
This course will emphasize the legal relationship of the physician and patient and the Medical Assistant's legal relationship in regard to the physician's legal responsibility in the practice of medicine. Upon completion of the course, the student will be able to understand the various principles of the law as they relate to the practice of medical assistant.

Offered Fall and Spring Semesters

AA 200—MEDICAL ASSISTANT TECHNIQUES 2 4 credits
This course is a continuation of advanced theory and skills in Medical Assistant Techniques. Selected laboratory procedures will include cardio-pulmonary resuscitation, first aid, electrocardiogram, minor surgery, and a basic patient personal care skills component. PREREQUISITE: AA 100.

Offered Spring Semester

AA 201—MEDICAL TERMINOLOGY 2 3 credits
A continuation of AA 101 Medical Terminology I. Emphasis will be placed on specific areas of medicine such as pathology, radiology, nuclear medicine, surgery etc. Discussion of the tests, procedures, and diseases that are commonly related to each area will be an integral part. PREREQUISITE: AA 101.

AA 210—HEALTH SCIENCE 2 3 credits
Presents combined classroom theory and planned student activity in a laboratory setting to prepare the allied health student to perform the following: vital signs, medical and surgical asepsis, first-aid, including CPR, record-keeping, body mechanics and patient movement, preparation of patient for special procedures and a general understanding of medications.

Offered Spring Semester

AA 211—HEALTH SCIENCE 3 1 credit
Presents theory and practice in classroom and laboratory setting to prepare Allied Health students for basic clinical skills and life support measures. PREREQUISITE: Permission of Department Chairman

AA 301—INTRODUCTION TO HUMAN DISEASE 3 credits
This course is designed to acquaint the student with the major causes of death in the United States: heart disease, cancer, and stroke. The student will become aware of genetic and environmental effects on health. In addition, he/she will learn how to promote his/her own good health and learn ways of taking charge to help prevent these major diseases from affecting self or family. Emphasis is on the relationship between daily life styles and health as a point of interest to all health-conscious people. This course is open to the entire student body.

Offered Fall & Spring Semesters

AA 304—MEDICAL ASSISTANT TECHNIQUES 3 8 credits
The affiliation period of 28 hours per week offers each student the opportunity to practice the skills learned in school in supervised clinical experiences. Various sites in hospital clinics, outpatient laboratories, EKG departments, physicians' offices, and health maintenance organizations will give the students the best possible background to make career decisions. PREREQUISITES: AA 100, AA 200, AL 406.

Offered Fall & Spring Semester

AA 319—PHARMOLOGY DOSAGE AND CALCULATIONS 1 credit
This module relates to pharmaceutical calculations and provides basic information on the apothecary and metric systems, and on conversion from one system to another based on practical drug problems encountered in clinical practice. PREREQUISITE: MM073 or equivalent.
Offered Spring Semester

AA 320—PHARMACOLOGY 3 credits
An introductory study covering pharmaceutical references and resources, trade and generic names, and a broad understanding of the effects of drugs on body systems. Classroom lectures include legal aspects of administering, dispensing, and prescribing drugs, types of drugs and drug actions, and side effects. PREREQUISITE: AA 319.
Offered Fall & Spring Semesters

Medical Laboratory Technician

AL 100—INTRODUCTION TO THE CLINICAL LAB 1 3 credits
The nature and scope of clinical laboratory work is explored. Proper use and care of laboratory equipment is explained. Urinalysis and principles of immunity are studied. Laboratory mathematics, preparation of laboratory solutions are taught.
Offered Fall Semester

AL 200—INTRO. TO MEDICAL MICROBIOLOGY 5 credits
The growth and identification of microorganisms, including bacterial, and fungi found in infectious diseases constitutes the basis of this course. Sensitivity testing as an aid to therapy is included.
Offered Spring Semester

AL 300—HEMATOLOGY AND COAGULATION 4 credits
The hemopoetic system, the origin and development of human blood cells, their function; normal and abnormal findings are the basis for this course. Coagulation factors and their role in health and disease are studied. PREREQUISITE: AL 100.
Offered Fall Semester

AL 302— CLINICAL CHEMISTRY 4 credits
Designed to acquaint the student with the principles of gravimetric, volumetric and colormetric analyses as applied to blood and other body fluids, this course stresses manual methods. Quantitative analyses are determined spectrophotometrically. Preparation of solutions and calibration of instruments are included. PREREQUISITE: AL 100.
Offered Fall Semester

AL 400—IMMUNOHEMATOLOGY 3 credits
Immunohematology provides the student with a background in the principles involved in preparing blood and blood components for transfusion purposes; the ABO system and Rh factors are studied. Compatibility testing is also taught. Hemolytic disease of the newborn and the identification of antibodies are included. PREREQUISITE: AL 300.
Offered Spring Semester

AL 401—PARASITOLOGY 2 credits
In this course the student will learn the life cycles and identification of parasites of man. Students will study prepared slides and process specimens for the detection of parasites. PREREQUISITE: AL 100.
Offered Spring Semester

AL 402—INTRODUCTION TO IMMUNOLOGY 2 credits
This course will be a continuation of course AL 100 with emphasis on immunity and serological procedures.
Offered Spring Semester.

AL 403—CLINICAL LAB PRACTICUM 1 4 credits
Supervised clinical experience is obtained in an affiliated hospital laboratory under the supervision of a qualified medical technologist and pathologist. The rotation schedule provides experience in the following departments: Blood Bank, Chemistry, Hematology, Microbiology, Serology, and Urinalysis. (Includes summer session.) PREREQUISITES: Successful completion of core curriculum with a minimum passing grade of "C".
Offered Spring Semester

AL 404—CLINICAL LAB PRACTICUM 2 8 credits
Continuation of AL 403.

Summer Session

AL 406—CLINICAL LAB PRACTICUM 6 credits
A ten (10) week practicum for students who have had prior work experience in the clinical laboratory and who can demonstrate achievement of planned competencies in AL 403/404 within this time frame. Approval of the Department Chairperson/MLT Medical Director is a prerequisite for registering for this course.

AL 407—BASIC LABORATORY PROCEDURES FOR THE MEDICAL ASSISTANT 3 credits
This course is designed to provide the Medical Assistant with the basic clinical laboratory skills which may be required in a physician's office. Procedures for obtaining blood and urine specimens are taught. Frequently requested hematology procedures and urinalysis are included. PREREQUISITES: AA 100 Medical Assisting Techniques 1.

Offered Fall and Spring Semesters

Medical Office Administration
(*See* Office Administration)

Metal Machining Technology
Option to Mechanical Technology

FA 110—METAL MACHINING 1 5 credits
Students will become familiar with drilling and tapping, boring, counterboring, countersink, spotfacing, reaming, horizontal shaping and filing, hacksaws, powersaws, bandsaws, scales, micrometers, verniers, calipers and combination square.

Offered Fall Semester

FA 130—MACHINE TOOL TECHNIQUES 1 credit
Covers industrial safety practices, principles of measuring using semi-precision and precision devices. Development of skills in machining techniques, cutting and hand tool, common to bench work and assembly. Application of thread series, tolerances, clearances, limits, fits and other mechanical specifications used in the interchangability of parts in the automotive industry. Includes lectures, demonstrations, and lab participation by the student.

FA 210—MACHINING 2 5 credits
Students will become familiar with dial indicators, gauge blocks, sinebar, various gauges, electric and electronic measuring devices, comparator, use of surface plate, scriber, dividers, and center punch. Also slot and slab milling, gang milling, form milling, angle milling, step milling and slotting, index head and index table for both horizontal and vertical work. PREREQUISITE: FA 110

Offered Spring Semester

FA 310—METAL MACHINING 3 5 credits
After having taken one semester of Metal Machining 1 and 2, the student is now familiar with the use of equipment related to inspection of the workplace, use of gauge blocks, sinebar and other allied equipment, surface finish and control checks. Familiarization with engine lathe work, roughland finish turning, facing, knurling, form turning, threading chuck work, both three jaw and four jaw, then grinding, flat surface, slots, shoulders, angles and forms.

Offered Fall Semester

FA 320—WORK SIMPLIFICATION 4 credits
A broad approach to the uses of motion and time study in industry. The use of various types of charts and operational processes in general problem solving are developed. Typical problems requiring the application of operational analysis are undertaken. Consideration is also given to the work place, the work area and the human engineering. The problem solving technique of evaluating alternate solutions is stressed.

Offered Spring Semester

FA 335—COMPUTER-AIDED MANUFACTURING 1 (CAM 1) 4 credits
In a laboratory setting, computer-aided manufacturing explores metal machining using a computer to run machine tools that are not integrated with other factory operations. The emphasis of the course is learning the programming language, selecting the tools and geometry of the cutting process of the computerized numerically-controlled lathe. A computer simulation is performed to test the student's program; then the part is actually manufactured. This course also introduces the integration of computer-aided drafting (CAD) with CAM to allow direct manufacturing of the part from the design screen. PREREQUISITE: FA 110

FA 410—METAL MACHINING 4 5 credits
The concepts of numeric control principles and application, how to write a program, point-to-point method in drilling, milling and contour milling, using the flexowriter. More detailed layout using jigs and fixtures also will be studied. Special applications applicable to set-up on machinery also will be studied. *Offered Spring Semester*

FA 435—COMPUTER-AIDED MANUFACTURING 2 (CAM 2) 4 credits
CAM 2 continues with the technology learned in CAM 1 by providing more hands-on experience with Computerized Numerically Controlled milling machines in a laboratory setting. The course progresses from learning the language used by the milling machine through actually manufacturing metal parts with the machine. Computer simulation, quality control, and the use of pneumatic robots in the manufacturing process are also discussed. PREREQUISITE: FA 335.

Microprocessing Technology Option to Electronic Technology

EP 101—INTRODUCTION TO TECHNOLOGY 1 credit
The purpose of this course is two-fold. First, the student is exposed to the world of present day technology through a survey of some of the principal areas of electronics - computers, communications, networks, etc. Then the student is introduced to the most important tool of technology—the Computer. The student studies a programming language - BASIC and utilizes the computer in the solving of problems relating to the first semester's course work. Thus, the students become conversant with the computer and aware of the various areas of study open to them.

Offered Fall Semester

EP 310—MICROCOMPUTER ARCHITECTURE AND LOGIC SYSTEMS 3 credits
This course is a continuation of ED 240 Introduction to Computer Organization and Programming. Topics discussed provide a hardware emphasis to computer concepts related to microcomputer systems. Discussions include a review of computer systems organization and programming concepts. New topics include Boolean algebra, logic operators, and data representation. Combinational logic networks will be discussed including gates, gate technologies, reduction methods and programmable logic arrays. An introduction to sequential logic networks will also be included. PREREQUISITES: Senior standing in Microprocessing Technology (in particular ED 240 Introduction to Computer Organization and Programming).

Offered Spring Semester

EP 320—DATA COMMUNICATIONS 3 credits
This course presents an overview of Data Communication. Included are descriptions of how a computer converts data to serial form for transmission. The RS 232 standard for serial transmission is studied in detail. Methods of transmission over communications channels are studied. The differences between various modulation transmission, a modem over a telephone line is analyzed as well as other forms of communication channels. Security and safety considerations are covered. Local area networks and global networks are discussed. PREREQUISITE: ED 240, CO-REQUISITE: ED 330.

Offered Spring Semester

EP 410—MICROCOMPUTER LAB 2 credits
This course is a continuation of ED 350 for students in Microprocessing Technology. Students will use the knowledge gained in the third semester to build, program, and troubleshoot microprocessor-based systems. Topics include chip interfacing, board layout, real-time pro-

gramming, power and ground busing schemes, and data acquisition circuits. Microcomputer projects may include 8085 and 6502 sight-bit processors or 68000 and 8088, 80286 series 16-bit processor systems. PREREQUISITES: All third semester Microprocessing Technology courses. CO-REQUISITE: ED 420 for Microprocessing Technology students, or permission of instructor.

Offered Spring Semester

EP 420—ADVANCED MICROCOMPUTER TOPICS 3 credits

This is a fourth semester course in the Microcomputer Technology program. The course is organized to present state of the art topics concerning microprocessor and microcomputer systems design. Topics may include design of Very Large Scale integrated systems (VLSI), packaging, microcomputer construction techniques. logic analyzers, and advanced troubleshooting techniques. PREREQUISITES: All third semester Microprocessing Technology courses.

Offered Spring Semester

EP 430—MICROCOMPUTER INTERFACING 3 credits

This is a fourth semester course in Microprocessing Technology. The course deals with the hardware necessary to build microcomputer systems from basic building block components. Both theoretical and practical aspects of interfacing processor, memory and input/output devices are discussed. Topics discussed in Data Communications and Microcomputer Architecture are now brought together in the context of chip to chip and board to board connections. Topics include grounding, shielding and system construction, interrupt handling, memory interfacing, direct memory access, bus systems, discrete interface components, serial and parallel interface and protocals (including RS-232, current loop, IEEE-488 bus, S-100 bus and others), magnetic device interface, and CRT controllers. PREREQUISITES: ET 310 A tive Networks 2, EP 320 Data Communications, EP 310 Microcomputer Architecture and Logic Systems, ED 330 Machine and Assembly Language Programming.

Offered Spring Semester

Music

LM 130—MUSIC APPRECIATION 3 credits

A survey course for the general student in which significant works from the several periods of music history will be heard and discussed. This course will be open to all students at the College. Outside listening and reading assignments will be scheduled and attendance at live concerts will be encouraged.

Offered Fall & Spring Semester

LM 133—INTRODUCTION TO PIANO AND THEORY 3 credits

A beginning piano course for adult students without prior musical knowledge or skills. The course will combine both music theory and a laboratory skills program with major emphasis on the basic structure of keyboard music. Melody, chords, rhythm, form, dynamics and style will be studied by the student at the keyboard and discussed in lecture sessions. Students will be encouraged to proceed as their individual abilities permit, requiring considerable individualization of instruction as they gain technical mastery. Open to all students at the College. PREREQUISITES: None.

Offered Fall & Spring Semester

LM 134—MUSIC FOR EARLY CHILDHOOD EDUCATION 3 credits

An introductory course in the tenets of music, keyboard experience and practical musical activities suitable for use in nursery, kindergarten and primary programs. Also included will be workshop experiences in rhythmic movement, singing, dramatization and rhythm instruments. Restricted to Early Childhood Education majors or by special permission of the instructor.

Offered Spring Semester

LM 233—INTERMEDIATE PIANO AND THEORY 2 credits

A continuation of the Introduction to Keyboard Skills course. Mastery of major and minor scales, arpeggios, and chords in all keys will be taught. The emphasis will be on developing mastery of sight-reading skill, providing the student with skills for further self-exploration of the keyboard upon completion of the program. Course open with the permission of the instructor or the satisfactory completion of LM 133.

Offered Fall & Spring Semester

Natural Science
(*See* Math & Natural Sciences)

Nuclear Medicine Technology

AZ 102—INTRODUCTION TO NMT 3 credits

This course serves to introduce the student to Nuclear Medicine Technology. The first weeks are devoted to understanding the rationale and requirements of the program as documented in the Handbook. Covered are: competencies in radiation safety, radiation accident prevention, emergency protocols, clinical protocols, darkroom procedures, survey and wipe techniques. The remainder of the course covers in detail the regulatory aspect of radioactive materials, an overview of the NMT program with the essentials, imaging procedures as an observer, the NMT laboratory, packaging, record keeping, and radioactive disposal. Basic chemistry is also covered. RESTRICTED to AZ. PREREQUISITES: concurrent MP 146, MB 232.

Offered Fall Semester

AZ 104—ORIENTATION TO PRACTICUM 0 credit

This orientation class will provide the student with an understanding of the Nuclear Medicine procedures, terminology associated with the department, and a general overview of the field, thus allowing a smooth transition for the student into the hospital setting. If time permits, a tour of each Nuclear Medicine affiliate will be given. RESTRICTED TO AZ.

Offered Fall Semester

AZ 204—STATISTICS AND INSTRUMENTATION 3 credits

The mathematics and rationale underlying the Poisson and Gaussian statistics is explained from basic terminology to linear regression. Basic electronics is covered enough to explain performance characteristics of collimators and phantoms. Quality assurance parameters of the dose calibrator, survey meters, scintillation tubes, and output instrumentation is covered; generator systems are also covered. RESTRICTED to AZ. PREREQUISITES: AZ 302, MB 132, MM 093, concurrent MP 300.

Offered Fall Semester

AZ 302—NUCLEAR IMAGING OF ORGANS 3 credits

This course initially introduces the methods of localization and birouting of radiopharmaceuticals used in Nuclear Medicine Technology. Upon completion of the above, the course will move into an organ/system approach dealing with but not limited to the following organ systems: central nervous, endocrine, respiratory, gastrointestinal, therapeutic systems and other miscellaneous systems. The coverage of each organ system will include in detail a discussion of the anatomy and physiology, radiopharmaceuticals used, technical aspects of imaging, as well as the indications and interpretations of the scans. RESTRICTED TO AZ PREREQUISITES: AZ 102, MB 132, concurrent MP 232.

Offered Spring Semester

AZ 414—IN VITRO AND NON-IMAGING STUDIES 3 credits

Various gastronintestinal studies are covered including the Schillings test. Hematologic and dilution procedures of the red cells and ferrokinetics are presented. Radioassay discusses the theory of immuniology and radioassay and enzyme studies. Liquid scintillation instrumentation is covered. RESTRICTED to AZ. PREREQUISITES: AZ 204, AZ 302.

Offered Spring Semester

AZ 411—NUCLEAR CARDIOLOGY AND OTHER ORGAN ANALYSIS 1 credit

Cardiac physiology and pathology are discussed in detail. Patient preparation, radiopharmaceuticals, instrumentation, and data acquisition are studied. Computer analysis of data both qualitative and quantitative for specific cardiac function and measurement are presented.

Phase analysis and dual nuclide imaging, and applications are covered. RESTRICTED to AZ. PREREQUISITES: AZ 302, MB 232.

Offered Spring Semester

AZ 415—INDEPENDENT STUDY 0 credit

This is a course of directed review and study for the student who has completed all the course requirements in Nuclear Medicine Technology but who has failed to pass the simulated registry examination as required for graduation. Successful completion of this course with a passing grade on a comprehensive examination will enable such a student to graduate. RESTRICTED TO AZ.

Offered Fall Semester

PRACTICUM EXPERIENCE

Practicum includes the clinical experiences unifying the theory taught in the Nuclear Medicine Technology and support courses. The sequencing of the practicum and competency examinations in specific task areas places gradual expectations on the level of the student so that after over 1900 accumulated clinical hours in twenty-four months, the student can be graduated as a competent NMT, board eligible. The expectations and requirements are outlined in the student handbook as well as in each course syllabus.

AZ 103—PRACTICUM 1 2 credits

The student is expected to apply classroom knowledge within the clinical setting, demonstrating initiative and enthusiasm to the supervising technologist. The semester competency examinations indicate the ability of the student to integrate theory and clinical practice. Offered two eight-hour days per week for a total of 144 clinical hours. RESTRICTED TO AZ. PREREQUISITES: AZ 104, MP 146, concurrent MB 132, AZ 102.

Offered Fall Semester

AZ 207—PRACTICUM 2 2 credits

This is the second course in the sequence of clinical practicum. Additional competency examinations are required. Offered two eight-hour days per week for a total of 216 clinical hours. RESTRICTED TO AZ. PREREQUISITES: AZ 102, AZ 103, MB 132, concurrent AZ 302, MB 232.

Offered Spring Semester

AZ 209—PRACTICUM - SUMMER - 1 5 credits

This is the third in the sequence of clinical practicum. Weekly classes are scheduled for the purpose of clinical discussion and review. A comprehensive examination is required in August, covering the topics included in the first year of study. Grading for the summer session will reflect both the clinical and the comprehensive components of the course. The clinical component of the course is graded on a pass/fail basis, with a minimum passing grade of 73. Students must pass this portion of the course to sit for the comprehensive exam. The final course grade for those students who qualify for the exam will be a reflection of the grade on the comprehensive exam. Students who do not satisfy the minimum grade of 73 on the exam will be permitted one exam retake. A second failure will result in dismissal from the program. Offered 40 hours per week for a total of 440 clinical hours. Restricted to AZ. PREREQUISITES: AZ 207, AZ 302, and MB 232.

Offered Summer Semester

AZ 301—PRACTICUM 3 5 credits

This is the fourth course in the sequence of clinical experience. Additional competency examinations will be assigned. Offered three eight-hour days per week for a total of 328 clinical hours. RESTRICTED TO AZ. PREREQUISITES: AZ 209, concurrent AZ 204, MP 300.

Offered Fall Semester

AZ 401—PRACTICUM 4 5 credits

This is the fifth course in the sequence of clinical experience. Additional competency examinations will be assigned. Offered three eight-hour days per week for a total of 328 clinical hours. RESTRICTED TO AZ. PREREQUISITES: AZ 301, AZ 204, MP 300.

Offered Spring Semester

AZ 410—PRACTICUM - SUMMER - 2 5 credits

This is the final practicum course, which involves the integration of two years of classroom learning with clinical practice. The student will be supervised one-on-one with the injection of radiopharmaceuticals as each affiliate permits. The course grade will be tabulated on the

same basis as the Summer 1 (AZ 209) practicum except that the comprehensive exam will be a simulated registry exam. Students are required to pass this exam with a minimum grade of 73 in order to pass the course and to graduate. Students who fail will be allowed one retry. Students failing a second time have the option of enrolling for an additional semester in an Independent Study (AZ 415). Offered 40 hours per week for a total of 328 clinical hours. Restricted to AZ. PREREQUISITES: AZ 401, AZ 411.

Offered Summer Semester

AZ 407—RADIOASSAY LABORATORY PRACTICUM 2 credits

For four weeks, the student will be assigned to a medical laboratory to implement the procedures involving the in vitro and non-imaging type procedures such as, but not limited to, RIA, T3, T4, and FOLATE studies. Offered 40 hours per week for a total of 160 clinical hours. RESTRICTED to AZ. PREREQUISITES: AZ 414, AZ 401; concurrent AZ 410.

Offered Summer Semester

Nursing

AN 100—NURSING 1 7 credits

Nursing 1 is an introduction to contemporary nursing. The conceptual framework utilized is the pursuit of wholeness through the nursing process. Using principles drawn from the behavioral and biological sciences, the student is guided in developing the ability to use this systematic method for assessment of needs, identification of problems, setting of goals and objectives, implementing and evaluating nursing care. The modular approach is used to help the student gain knowledge and understanding of the life cycle, the nursing process, nursing issues, health needs, basic nutrition and pharmacology. Integrated with the theoretical content is planned simulated laboratory practice and experience in health facilities which permit the opportunity to apply scientific principles and develop skill in meeting patient needs. In order to develop the student's ability to compute medication dosage, completion of Math Module (MM 077) is required by the 12th week.

Offered Fall Semester

AN 200—NURSING 2 7 credits

With the knowledge of basic concepts and skills in nursing derived from Nursing 1, the student is provided with opportunities to develop the nursing process. Under supervision, he/she implements and evaluates nursing care to children and adults. Community health facilities are utilized to give the student the opportunity to plan and deliver care to persons of various life styles and economic standards, who are experiencing various degrees of homeostatic imbalance.

Offered Spring Semester

AN 300—NURSING 3 9 credits

A continuation of Nursing 2, in which the student is more independent in using the nursing process to coordinate care for persons with more complex health problems.

Offered Fall Semester

AN 400—NURSING 4 9 credits

NURSING THE CHILDBEARING FAMILY 4.5 credits

Nursing the Childbearing Family is concerned with the maternity cycle and with the people involved in the family unit, from conception through the neonatal period. The developmental approach is used to assist the student to assimilate knowledge and understanding of the family as it deals with maintaining health and as it copes with the stresses of pregnancy, childbirth, and integration of the newborn into the family. The student nurse will develop skill in using the nursing process to meet the needs of the childbearing family in a variety of settings.

Offered Spring Semester

COMMUNITY MENTAL HEALTH NURSING 4.5 credits

Through the exposure to Community Mental Health Agencies, the student of nursing will be offered opportunities to develop psychiatric nursing skills practiced in previous nursing courses. Interpersonal skills will be refined through relationships with patients, health teammembers and in group process. Community resources will be selected in order to expose

the student to leaders in community mental health and media which will broaden their field of knowledge in the discipline.

Offered Spring Semester

AN 401—NURSING 5 2 credits

Nursing process is utilized in assisting students to identify their needs and problems in the transition role from student to graduate. This course is designed to help prepare the graduate for professional nursing responsibilities. Discussion topics include basic legal concepts, current issues in nursing, nursing leadership within an organization and role of the nurse within the nursing profession.

Offered Spring Semester

Office Administration

BC 102—MACHINE SHORTHAND 1 6 credits

This course will enable the student to gain a mastery of the basic machine shorthand theory. Emphasis will be placed on stroking technique and vocabulary development through the reading and writing of shorthand. Machine shorthand tapes correlated with the textbook are used in the development of dictation speed and the reading of notes accurately. This course meets 10 hours per week. A grade of "C" or better is required. PREREQUISITES: BZ 101, BZ 201

Offered Fall Semester

BC 103—MACHINE SHORTHAND SKILL BUILDING 1 3 credits

This seminar course is designed to reinforce the theory and skills developed in Machine Shorthand 1. Machine shorthand tapes will be assigned. This seminar course will meet 6 hours per week. A grade of "C" or better is required.

Offered Winter Intersession

BC 105—COURT REPORTING EDITING 3 credits

Court Reporting Editing is designed to assist the student in becoming a professional word-smith, especially in dealing with spontaneous speech, which is less organized than written speech. This course emphasizes the basic principles of typewriting style, word division, punctuation style, spelling improvement, capitalization, number and abbreviation styles, proofreading, and editing as they apply to the verbatim English found in court transcripts. Achievement tests will be administered on completion of each area of emphasis. PREREQUISITE: LE 100.

Offered Fall Semester

BC 202—MACHINE SHORTHAND 2 6 credits

This course will enable the student to gain a mastery of advanced machine shorthand theory and to develop shorthand and transcription skill on unfamiliar material. The student will develop the ability to separate phonetically unfamiliar words according to machine shorthand theory and to write these words accurately in shorthand. Students will transcribe unfamiliar material with 95 percent accuracy. The course meets 10 hours per week. A grade of "C" or better is required. PREREQUISITE: BC 103 or permission of instructor.

Offered Spring Semester

BC 203—MACHINE SHORTHAND SKILL BUILDING 2 4 credits

This seminar course is designed to reinforce the theory and skill developed in Machine Shorthand 2. Machine Shorthand tapes will be assigned. This course will meet 6 hours per week. A grade of "C" or better is required.

Offered Summer Session

BC 302—MACHINE SHORTHAND 3 6 credits

This course continues the presentation of advanced shorthand theory, emphasizes speed building, and reviews grammar and punctuation appropriate to legal transcripts. Students will be tested weekly on literary material, jury charge, and question and answer testimony, each of which must be passed with 95 percent accuracy. The course meets 10 hours per week. A grade of "C" or better is required. PREREQUISITE: BC 203, or permission of the instructor.

Offered Fall Semester

BC 303—MACHINE SHORTHAND SKILL BUILDING 3 3 credits
This seminar course is designed to reinforce the theory and skill developed in Machine Shorthand 3. Machine shorthand tapes will be assigned. This course will meet 6 hours per week. A grade of "C" or better is required.

Offered Winter Intersession

BC 402—MACHINE SHORTHAND 4 6 credits
This course is a continuation of BC 302 emphasizing speed and accuracy. Students will be required to transcribe verbatim with a minimum of 95 percent accuracy advanced dictation of jury charges, literary selections, and multi-voice question and answer testimony. Students will be trained under simulated conditions in preparation for the Massachusetts Certified Shorthand Reporter's Examination. Included are a review of medical terminology, specialized material in the areas of legal, technical and medical dictation, and sustained dictation. The course meets 10 hours per week. A grade of "C" or better is required. PREREQUISITES: BC 303 or permission of instructor.

Offered Spring Semester

BC 403—MEDICAL DICTATION FOR COURT REPORTERS 1 credit
This course will consist of medical dictation emphasizing question and answer material at speeds ranging from 150 to 225 wpm. This material is generally drawn from actual cases. A grade of "C" or better is required.

Offered Spring Semester

BC 412—COURT REPORTING TECHNOLOGY 3 credits
This course is designed to familiarize students with the Massachusetts court system, transcript format for district and superior courts, as well as reporting techniques using machine shorthand. Students will attend actual court cases approved by the instructor, and prepare transcripts of those cases. A grade of "C" or better is required. PREREQUISITE: BC 303, or permission of instructor.

Offered Spring Semester

BC 502—MACHINE SHORTHAND 5/ADVANCED COURT REPORTING TECHNOLOGY 9 credits
This course is restricted to fifth-semester Court Reporting majors who have not completed the requirements of Machine Shorthand 4 and/or Court Reporting Technology. The student works independently with speed tapes and is tested regularly at CSR and RPR levels. He/she affiliates with a local reporting firm and/or with an official reporter, spending 15 hours per week attending actual cases and transcribing. Grades are based on high-speed dictations and recommendations of the cooperating firm. A seminar is held weekly. A grade of "C" or better is required.

Offered Fall Semester

BE 301—EXECUTIVE TYPEWRITING 3 credits
This course is designed for the Executive Office Administration major. It will be offered in either the classroom environment or the Office Administration Learning Center, using audio-visual/multi-media systems. Difficult materials in manuscripts, statistical, letter, and rough draft typing present a challenge in problem solving. Speed and accuracy are developed through daily production of these materials, and typing stamina is further built and maintained by production tests. The minimum speed requirement for this course is 50 words per minute for five minutes, with five errors or less. The course meets five scheduled hours per week. PREREQUISITES: BZ 201 or BZ 211. NOTE: No credit is given unless minimum mailabilty standards are achieved.

Offered Fall Semester

BE 303—EXECUTIVE OFFICE PRACTICE 2 credits
This course gives the student instruction and practice in a variety of office skills, including the duties of the receptionist, telephone techniques, handling confidential matters, conferences and itineraries. Through the use of simulated office situations, the student develops initiative and decision-making abilities essential to top-level office administration positions. The course meets 2 hours per week. A grade of "C" or better is required. PREREQUISITE: BZ 201. NOTE: No credit is given unless minimum mailability standards are achieved.

Offered Fall Semester

BE 402—EXECUTIVE/TECHNICAL DICTATION & TRANSCRIPTION 6 credits
This course is designed to develop the student's ability to take dictation at high rates of speed and to transcribe rapidly and accurately. Shorthand theory, punctuation, spelling and vocabulary are stressed throughout the course. The course meets 6 hours per week. A grade of "C" or better is required. PREREQUISITES: BZ 302 and BE 301.
NOTE: No credit is given unless minimum mailability standards are achieved.
Offered Spring Semester

BK 312—WOMEN, MANAGEMENT, AND LEADERSHIP 3 credits
This course is designed to prepare women to be effective participants and leaders in organizational settings. Students will examine the "Holistic Leadership Model for Women" to develop an appreciation of the interactional effects between societal, organizational, and self norms and expectations of our leadership in organizations. Objectives of the course are: 1) to develop an appreciation of the role of cultural differences in our ability to be effective leaders; 2) to increase our understanding of our own leadership styles through the assessment of our attitudes, values, and behaviors on leadership dimensions of particular concern to women in organizations; 3) to develop confidence in our styles of leadership as women and to develop strategies for the effective application of our styles to organizational settings; and 4) to increase our knowledge of leadership theory as well as to critique the theory in terms of its relevance to women's experience in organizations. PREREQUISITES: BK 110 or BK 112.
Offered periodically

BL 301—LEGAL TYPEWRITING 3 credits
This course is designed specifically for the Legal Office Administration major. Stress is placed on building speed and accuracy in the production of legal documents and correspondence. Legal vocabulary and punctuation are emphasized through project work. PREREQUISITE: BZ 201; typing speed of 40 words per minute for 5 minutes. This course meets 5 hours per week. A grade of "C" or better is required. The minimum requirement for this course is 50 word per minute for 5 minutes with 5 or fewer errors from unpracticed legal material. NOTE: No credit is given unless minimum mailability standards are achieved.
Offered Fall Semester

BL 302—LEGAL SHORTHAND TERMINOLOGY 1 credit
This course is designed to give the student a background in basic legal terminology. The student who successfully completes this course will be able to correctly spell, pronounce, and define the legal terms presented. Students who plan to work in a legal office as a receptionist/typist, secretary, stenographer, word processor, or research assistant, or in a court-related job such as court reporter, note-reader transcriber, or transcriptionist will benefit from the course. This course meets one class period per week. A grade of "C" or better is required. PREREQUISITES: BC 202 or BZ 202, BZ 201.
Offered Fall Semester

BL 303—LEGAL OFFICE PRACTICE 2 credits
This course is designed to acquaint the student with the Massachusetts court system, including practices and procedures in the preparation of legal papers and documents. Legal terminology and procedures in the areas of criminal, civil, probate, domestic relations, etc., will be presented. Field trips will be arranged. Speakers from the courts and legal offices in the Greater Springfield area will be scheduled. The course meets 2 hours per week. A grade of "C" or better is required. PREREQUISITE: BZ 202 or BC 202, BZ 201.
NOTE: No credit is given unless minimum mailability standards are achieved.
Offered Fall Semester

BL 402—LEGAL DICTATION & TRANSCRIPTION 4 credits
This course is designed to develop the student's ability to take dictation of legal material and to transcribe with speed and accuracy. Legal terminology, grammar, spelling, punctuation, capitalization, proofreading, and the use of reference material will be stressed. The Mass. Rules of Court will be followed. This course meets 6 hours per week in a designated information processing center. A grade of "C" or better is required. PREREQUISITE: BZ 302 or BC 302, BL 301, BL 302, BZ 305.
NOTE: No credit is given unless minimum mailability standards are achieved.
Offered Spring Semester

BM 301—MEDICAL TYPEWRITING 3 credits
This course is designed specifically for the Medical Office Administration major. This production typing course concentrates on understanding and accuracy in typing medical forms, reports, progress notes, case histories, and correspondence. Typing stamina is built and maintained through 5-minute timed writings using medical material. The minimum requirement for this course is 50 words per minute for 5 minutes with 5 or fewer errors from unpracticed medical material. This course meets 5 hours per week. PREREQUISITE: BZ 201 (Typing 2 or equivalent) and minimum speed of 40 wpm for 5 minutes.
NOTE: No credit is given unless minimum mailability standards are achieved.
Offered Fall Semester

BM 303—MEDICAL OFFICE PRACTICE 2 credits
This course is designed to familiarize the student with the routine business skills pertinent to the medical office. This course includes the development of reception room procedures, telephone techniques, and various other medical office asssitant duties. The course meets 2 hours per week. PREREQUISITE: BZ 101.
NOTE: No credit is given unless minimum mailability standards are achieved.
Offered Spring Semester

BM 454—MEDICAL MACHINE TRANSCRIPTION 3 credits
This course is an introduction to basic machine transcription techniques with emphasis on spelling, grammar, punctuation, number usage, and capitalization of medical material. Vocabulary relating to a variety of medical specialties will be introduced. Emphasis is on mailable transcripts of medical forms; History, Operative Report, X-Ray, Consultant's Report, and Autopsy Report. The relationship of machine transcription to the word-processing concept will also be introduced. This class will meet in a designated information processing center. The course meets 3 hours per week. PREREQUISITES: BM 301 (Medical Typewriting), BM 303 (Medical Office Practice), BZ 305 (Word Proc. Tech 1), and typing speed of 50 wpm.
NOTE: No credit is given unless minimum mailability standards are achieved.
Offered Spring Semester

BO 103—OFFICE ASSISTANT PROCEDURES 2 credits
The job of the Office Assistant includes many tasks such as typing, filing, recordkeeping, operating office machines, performing receptionist duties, and doing general office work. The job title assigned to this type of work may be office assistant, general office clerk, office clerk, secretarial assistant, clerical assistant, typist, clerk-typist, records clerk, or office machine operator. This course prepares students for the varied and interesting work found in the modern office. It provides students with the opportunity to acquire the knowledge and skills needed to perform these important duties in a field of work that continues to grow.
Offered Fall Semester

BO 204—INTRO. TO MACHINE TRANSCRIPTION 3 credits
This course is an introduction to basic transcription techniques with emphasis on spelling, grammar, punctuation, number usage, and capitalization. Vocational competence in machine transcription for the clerical office worker is the principal goal of introduction to Machine Transcription. Developing good listening techniques, producing first-time mailable business communications, and learning the importance of machine dictation and transcription in the word processing cycle are the important objectives in this course. PREREQUISITES: BZ 101, BZ 105.
Offered Spring Semester

BP 106—MEDICAL ASSISTANT RECORDKEEPING 1 credit
This course is designed to introduce the medical assistant to the basics of medical office recordkeeping. A brief survey of the methods and procedures of billing, banking and bookkeeping will be presented.
Offered Spring Semester

BZ 100—KEYBOARDING SKILLS 1 credit

This course is designed for any individual wishing to develop touch keyboarding skills applicable to today's sophisticated typewriter and computer keyboards. A minimum touch keyboarding speed of 15 wpm is required for course completion. Available to the entire STCC community. PREREQUISITE: NONE.

Offered Fall and Spring Semester

BZ 101—TYPEWRITING 1 3 credits

A foundation course in which current typewriting techniques, speed and accuracy are stressed. Three-minute timed writings are introduced. The student becomes familiar with centering, manuscripts, tabulations and letter style. Class drills and projects aid in individual progress. The minimum speed requirement for the course is 30 words per minute for 3 minutes with 3 or less errors for beginners. Course meets 5 hours per week. A grade of "C" or better is required.

Offered Fall & Spring Semester

BZ 102—SHORTHAND FOR THE ELECTRONIC OFFICE I 4 credits

This course introduces Gregg Shorthand, Series 90, for the information processing era. Emphasis is placed on mastery of basic principles with particular attention to penmanship, vocabulary, spelling, punctuation, English grammar, and transcription. The course stresses the use of shorthand as a recognized business and industry indicator for predicting promotability and productivity in the electronic office. The minimum speed requirement for the course is 40 words per minute for 2 minutes on familiar material with 95% accuracy. The course meets 5 hours per week. A grade of "C" or better is required.

Offered Fall Semester

BZ 103—PERSONAL USE WORD PROCESSING 1 credit

This modularized course is designed to acquaint beginners with basic word processing capabilities using Wang and/or IBM systems and varying software. Three five-week sessions will be offered: Session One, Wang Integrated Information Processing; Session Two, IBM PC, WordPerfect; Session Three, IBM PC, MultiMate. Students wishing to enroll in more than one module may do so under a directed study contract with the instructor. Some typing experience is helpful.

Offered Fall and Spring Semesters

BZ 105—WORD PROCESSING EDITING 3 credits

Word Processing Editing is a one-semester course which will prepare the student for production of mailable business communications in machine transcription and word processing courses. The course emphasizes the basic principles of typewriting style and word division, punctuation style, spelling improvement, capitalization, number, and abbreviation styles, proofreading, and editing. Achievement tests will be administered upon completion of each area of emphasis.

Offered Fall & Spring Semester

BZ 111—AVT/MLS TYPEWRITING 1 3 credits

This course is designed for students who have previous knowledge and experience with the keyboard. The course is a self-paced typing program in the Office Administration Learning Center, whereby students work independently of other class members. Students use audio-visual multi-media learning systems, slides, and cassettes for their instructions. An instructor and/or lab assistant is available at all times to assist students. Emphasis is placed on developing correct typewriting techniques, accuracy, and speed. The minimum speed requirement for the course is 30 words per minute for 3 minutes with 3 or less errors. The course meets 3 scheduled hours per week, with 2 additional open lab hours. A grade of "C" or better is required. PREREQUISITE: touch keyboarding skill.

Offered Fall & Spring Semesters

BZ 112—SHORTHAND SKILL BUILDING 4 credits

This course is designed for the student who has had some experience with shorthand but does not feel secure enough to proceed with Shorthand 2. The course will include a thorough review of College Gregg Shorthand principles. Emphasis will be placed on the development of speed and accuracy in taking dictation in conjunction with spelling, punctuation and vocabulary. The minimum requirement for the course will be 70 words per minute for two minutes will 95 percent accuracy. The course meets 5 hours per week. A grade of "C" or better is required.

Offered Periodically

BZ 113—RECORDS MANAGEMENT 1 credit
In this course the student learns the office procedures involved in records management and in the alphabetic filing arrangement of personal names and the names of businesses, institutions, and government agencies. Subject numeric, and geographic filing are also presented. New emphasis will be given to electronic filing.

Offered Fall & Spring Semester

BZ 115—STENOSCRIPT 1 3 credits
Stenoscript is an alphabetic system of shorthand that can be learned in one semester. Students will develop a marketable shorthand skill of up to 90 words a minute that will make them more employable and help them earn better salaries. Brief alphabetic forms, abbreviations, business vocabulary, punctuation rules, speed building drills, and a 6,000-word business dictionary are presented. This course is designed for any student seeking stenoscript abilities; however, students wishing a degree in Executive Office Administration **with shorthand** should enroll in **BZ 102-SHORTHAND I.**

BZ 200—KEYBOARD SKILL BUILDING 1 credit
This course is designed to assist individuals in building keyboard speed. Individual speed building goals will be determined with a minimum goal of a 10 wpm gain. Available to the entire STCC community. PREREQUISITE: BZ 100, BZ 101, or BZ 111.

Offered Fall and Spring Semesters

BZ 201—TYPEWRITING 2 3 credits
This course is a continuation of BZ 101 or its equivalent with continued development of speed and accuracy together with a thorough mastery of all letter and envelope styles, interoffice correspondence, addressing envelopes, rough draft materials and tabulation. The minimum requirement for this course is 40 words per minute for 5 minutes with 5 or less errors. The course meets 5 hours per week. A grade of "C" or better is required. PREREQUISITE: BZ 101 or equivalent.

Offered Fall & Spring Semester

BZ 202—SHORTHAND FOR THE ELECTRONIC OFFICE 2 4 credits
This course continues the refinement of the principles of Gregg Shorthand, Series 90, for the information processing era with further emphasis on basic principles, penmanship, vocabulary, spelling, punctuation, English grammar, and transcription. Since over two-thirds of today's business executives specify secretaries with shorthand, emphasis is placed on the development of speed and accuracy in taking dictation. Computer shorthand will be introduced and will train students to think in shorthand while keyboarding their shorthand notes. The minimum requirement for the course is 60 words per minute for 3 minutes on new material with 95% accuracy. The course meets 5 hours per week. A grade of "C" or better is required. PREREQUISITE: BZ 102 or BZ 112, BZ 101.

Offered Spring Semester

BZ 203—COMPUTER SHORTHAND FOR NON-SHORTHAND WRITERS 3 credits
Gregg Computer Shorthand applies the basics of the Gregg phonetic system in the creation of documents at the microcomputer. Better than "speedwriting," computer shorthand dramatically increases the transcriber's speed and accuracy with sophisticated software that automatically completes shortened words. PREREQUISITE: BZ 101 or a touch-typing capability of 35 wpm.

Offered Fall & Spring Semesters

BZ 205—WORD PROCESSING CONCEPTS 1 credit
This lecture course introduces the total concept of word/information processing. It serves as an overview for college students who are interested in learning how to adapt technically advanced office equipment to process words. The course introduces the concept and role of word processing in office automation; explains the rapidly expanding technology and terminology and those career opportunities it offers; and uncovers the mysteries of modern office technology and its effect upon office work and those who perform it. This course meets once a week, and should be taken prior to or concurrently with BZ 305 or with permission of instructor.

Offered Fall & Spring Semester

BZ 211—AVT/MLS TYPEWRITING 2 3 credits
This course is a continuation of BZ 111. The course is a self-paced typing program in the Office Administration Learning Center whereby students work independently of other class members. Students use audio-visual/multi-media learning systems, slides, and cassettes for

BZ 115—STENOSCRIPT 1 3 credits
Stenoscript is an alphabetic system of shorthand that can be learned in one semester. Students will develop a marketable shorthand skill of up to 90 words a minute that will make them more employable and help them earn better salaries. Brief alphabetic forms, abbreviations, business vocabulary, punctuation rules, speed building drills, and a 6,000-word business dictionary are presented. This course is designed for any student seeking stenoscript abilities; however, students wishing a degree in Executive Office Administration **with shorthand** should enroll in **BZ 102-SHORTHAND I.**

BZ 200—KEYBOARD SKILL BUILDING 1 credit
This course is designed to assist individuals in building keyboard speed. Individual speed building goals will be determined with a minimum goal of a 10 wpm gain. Available to the entire STCC community. PREREQUISITE: BZ 100, BZ 101, or BZ 111.
Offered Fall and Spring Semesters

BZ 201—TYPEWRITING 2 3 credits
This course is a continuation of BZ 101 or its equivalent with continued development of speed and accuracy together with a thorough mastery of all letter and envelope styles, interoffice correspondence, addressing envelopes, rough draft materials and tabulation. The minimum requirement for this course is 40 words per minute for 5 minutes with 5 or less errors. The course meets 5 hours per week. A grade of "C" or better is required. PREREQUISITE: BZ 101 or equivalent.
Offered Fall & Spring Semester

BZ 202—SHORTHAND FOR THE ELECTRONIC OFFICE 2 4 credits
This course continues the refinement of the principles of Gregg Shorthand, Series 90, for the information processing era with further emphasis on basic principles, penmanship, vocabulary, spelling, punctuation, English grammar, and transcription. Since over two-thirds of today's business executives specify secretaries with shorthand, emphasis is placed on the development of speed and accuracy in taking dictation. The minimum requirement for the course is 60 words per minute for 3 minutes on new material with 95% accuracy. The course meets 5 hours per week. A grade of "C" or better is required. PREREQUISITE: BZ 102 or BZ 112, BZ 101.
Offered Spring Semester

BZ 205—WORD PROCESSING CONCEPTS 1 credit
This lecture course introduces the total concept of word/information processing. It serves as an overview for college students who are interested in learning how to adapt technically advanced office equipment to process words. The course introduces the concept and role of word processing in office automation; explains the rapidly expanding technology and terminology and those career opportunities it offers; and uncovers the mysteries of modern office technology and its effect upon office work and those who perform it. This course meets once a week, and should be taken prior to or concurrently with BZ 305 or with permission of instructor.
Offered Fall & Spring Semester

BZ 211—AVT/MLS TYPEWRITING 2 3 credits
This course is a continuation of BZ 111. The course is a self-paced typing program in the Office Administration Learning Center whereby students work independently of other class members. Students use audio-visual/multi-media learning systems, slides, and cassettes for their instuctions. An instructor and/or lab assistant is available at all times to assist students. Emphasis is on continued development of speed and accuracy and a thorough mastery of production assignments. The minimum requirement for this course is 40 words per minute for 5 minutes, with 5 errors or less. This course meets 3 scheduled times per week with 2 additional open lab hours. A grade of "C" or better is required. PRERQUISITE: BZ 111 or BZ 101.
Offered Fall & Spring Semesters

BZ 240—BUSINESS CALCULATING MACHINES 1 credit
This course gives the student instruction and practice on the ten-key keyboard calculator commonly found in business offices. The application of basic mathematical principles in solving business problems is stressed. This course meets 1 hour per week.
Offered Fall & Spring Semester

BZ 251—MEDICAL TYPEWRITING 2 credits
This course is designed specifically for the Medical Assistant. Emphasis is placed on the understanding and production of medical forms, insurance forms, case histories, discharge summaries, medical reports, and medical correspondence. Typing stamina is built and maintained through 5-minute timed writings using medical material. PREREQUISITE: BZ 101 (Typing 1 or equivalent).

Offered Fall Semester

BZ 454—MEDICAL OFFICE PRACTICE 2 3 credits
This course is designed to introduce the medical assistant to machine transcription and word processing applications. Stress will be placed on skill development and production of accurate medical correspondence and reports. This class will meet in a designated information processing center. The course meets 3 hours per week. PREREQUISITES: BZ 101 or equivalent and BZ 251.

Offered Spring Semester

BZ 302—SHORTHAND SPEED BUILDING 1 credit
This course stresses the development of speed with continued emphasis on basic principles and transcription for mailability in the electronic office. The minimum requirement for the course is 80 words per minute for 5 minutes with 95% accuracy. The course meets 2 class meetings per week. A grade of "C" or better is required. PREREQUISITE: BZ 202 or BZ 211, 201.

Offered Fall Semester

BZ 304—MACHINE TRANSCRIPTION 3 credits
This course emphasizes the techniques and operation of machine transcription equipment. Transcription skills will be acquired through the use of a wide variety of business related dictation. Grammar, spelling, punctuation, capitalization, proofreading, and the use of reference material will be stressed. The relationship of machine transcription to the word-processing concept will also be introduced. The course meets three hours per week. PREREQUISITE: BZ 201, or BZ 211, BZ 105, 40 WPM typing speed.
NOTE: No credit is given unless minimum mailability standards are achieved.

Offered Fall & Spring Semester

BZ 305—WORD PROCESSING TECHNOLOGY 1 ON WANG INTEGRATED INFORMATION SYSTEMS 3 credits
This course is designed to familiarize the student with Wang Integrated information processing equipment and applications. Students will complete basic and advanced word processing assignments using state-of-the-art equipment. The second half of the course will introduce students to glossary writing - the creation of glossary programs that will automatically perform specified integrated word processing functions. The knowledge and skills gained in this course are easily transferrable to other computer systems. This course meets for three lecture hours and a minimum of two lab hours. PREREQUISITES: BZ 201 or permission of department chairman. NOTE: No credit is given unless minimum mailability standards are achieved.

Offered Fall & Spring Semesters

BZ 405—INFORMATION PROCESSING OFFICE MANAGEMENT 3 credits
This course exposes the student to typical responsibilities encountered in managing an information processing center. It will include measuring productivity techniques, employee-training techniques, motivation of personnel, design of forms, controlling distributions of work, investigation of different types of hardware, centralized and decentralized services, and planning the office. Meets 3 hours per week. A grade of "C" or better is required of Word Processing Management majors. PREREQUISITE: BZ 205 or permission of instructor.

Offered Spring Semester

BZ 415—WORD PROCESSING TECHNOLOGY 2 ON THE IBM PC 3 credits
This course is designed to familiarize the student with information processing capabilities on the IBM PC. Major emphasis is placed on using basic to advanced funtions in processing business documents using WordPerfect software. Advanced functions of MultiMate software will also be covered. The remainder of the semester will be spent on learning the basics of Lotus 1-2-3 spreadsheets. The student will also have an understanding and appreciation of how data processing integrates with word processing using DOS (Disk Operating System)

Administration department. A faculty coordinator will meet routinely with each student to review work completed. PREREQUISITES: BK 110, BZ 304, and permission of department chairperson.

Offered Spring Semester

Philosophy

LX 110—PHILOSOPHY 1
Philosophy is part of the study of the self; the search for reasons for our values and beliefs; and for good reasons for our reasons. The course includes a critical examination of the traditional questions in ethics, politics, religion and art. No prerequisites.

LX 210—PHILOSOPHY 2 3 credits
This course will examine in greater detail some of the classical problems along with some contemporary problems introduced in Philosophy 1. Students will be required to write one critical essay and one annotated bibliography on assigned readings. This course will feature guest lectures by members of other departments of STCC and outside participants.

Physical Therapist Assistant

AP 100—PHYSICAL THERAPIST ASSISTANT 1 4 credits
This course provides a survey of Physical Therapy and its relation to the medical environment. Emphasis is placed on the relationship of the assistant to the registered professional Physical Therapist. Body mechanics, selected basic nursing skills, and first aid are included. Field trips for orientation and observation will be planned.

Offered Fall Semester

AP 200—KINESIOLOGY 4 credits
This course is designed to develop an understanding of the dynamics of human motion through the study of muscles and joints. PREREQUISITE: Anatomy & Physiology 1 (MB 132).

Offered Spring Semester

AP 201—PHYSICAL THERAPIST ASSISTANT 2 4 credits
This course provides lecture and laboratory work in hydrotherapy, electrotherapy, massage and the study of their physiological effects. Principles of bronchial drainage are included. PREREQUISITE: Physical Therapist Assisting 1.

Offered Spring Semester

AP 300—MEDICAL LECTURES 3 credits
This course presents the tissue changes resulting from trauma, disease, tumors, and degenerative processes. A series of lectures acquaint the student with the orthopedic, neurological, and general medical conditions he/she will encounter in treating the patient. PREREQUISITES: Anatomy & Physiology 1 and 2 (MB 132, MB 232).

Offered Fall Semester

AP 301—PHYSICAL THERAPIST ASSISTANT 3 4 credits
The student studies mechanical and physiological concepts of exercise programs with emphasis on the problems related to the patient's motor involvement. Laboratory experience is provided to develop the skill of the student in application of various assistive devices. PREREQUISITE: Kinesiology (AP 200) Physical Therapist Assistant Techniques 1 & 2 (AP 100, AP 201).

Offered Fall Semester

AP 302—MUSCLE TESTING 1 credit
This is an introductory course in the manual testing of the gross strength of human muscle groups. PREREQUISITE: AP 200 Kinesiology.

Offered Fall Semester

AP 403, AP 404—SUPERVISED CLINICAL EXPERIENCE 6 credits each
Supervised practice in selected clinical settings. PREREQUISITES: Physical Therapist Assistant Techniques 1, 2, & 3 (AP 100, AP 201, AP 301); Kinesiology, AP 200; Medical Lectures, AP 300.

Offered Spring Semester

AP 402—PHYSICAL THERAPIST ASSISTANT SEMINAR 1 credit
The purpose of these seminars is to correlate the academic and technical courses with the practical clinical work. They are alternately scheduled with the affiliation assignments so that students may return to the classroom for sharing and discussion.

Offered Spring Semester

Physics

MP 090—BASIC SCIENCE 4 credits
Introduction to physical science, using very frequent experiments and simple arithmetic. Emphasis on development of the student's confidence, initiative, and self-reliance. Includes volume by water displacement; weight changes in reactions; freezing and boiling points; densities of solids, liquids and gases; solubilities. Constant proportions from electrolysis of water and from synthesis of a salt. Atoms and molecules; spectra; radioactivity. PREREQUISITE: None. The course serves as preparation for other college science courses and is suitable for students who have taken no previous science.

Offered Fall & Spring Semester

MP 119—TECHNICAL PHYSICS 4 credits
An overview of physics in one semester, intended primarily for students in Technology programs, Mechanics topics include vectors, statistics, linear and circular motion, work and energy. Electric fields and circuits, waves, light, and atomic physics are also treated. Experimentation and problem-solving are stressed. PREREQUISITE: MM 101 (Trigonometry).

Offered Fall & Spring Semester

MP 120—TECHNICAL PHYSICS FOR ELECTRONICS 4 credits
A course on mechanics, energy, electricity, magnetism and light. Lectures, demonstrations, problem assignments and laboratory work carried on in the areas of; motion, energy conservation, electromagnetic induction, EM radiation and optics. Three hour laboratory. PREREQUISITE: MM 101 (Trigonometry).

Offered Spring Semester

MP 130—COLLEGE PHYSICS 1 4 credits
A non-calculus, college level physics course for liberal arts transfer students or students of the life sciences. Topics include motion, mass, force, conservation laws, momentum, gravitation, work, energy, and heat. The problems and laboratory are designed with biological applications. There is a three hour laboratory per week. PREREQUISITE: MM 093 (Algebra).

Offered Fall Semester

MP 230—COLLEGE PHYSICS 2 4 credits
A non-calculus, college level physics course for liberal arts transfer students or students in the area of pre-med., pre-dental, pre-vet., or the life sciences. Topics include electrostatics, basic electronics, solid state, circuit analysis, alternating current, optics, construction of the nucleus, radioctivity, and Bohr model. Three hour laboratory. PREREQUISITE: MM 093 (Algebra).

Offered Spring Semester

MP 132—UNIVERSITY PHYSICS 1 4 credits
Rigorous introductory course covering mechanics, statics, conservation of energy and momentum, conservation of angular momentum, and simple harmonic motion. Three hour laboratory. PREREQUISITE: MM 155 (Calculus 1).

Offered Spring Semester

MP 148—ADVANCED RADIATION PROTECTION 1 credit
This five-week module is a continuation of MP 146. Topics covered include radioactivity and problem solving relating to half-lives and decay, half-value layer, and attenuation. Calculations on person and time spent in radiation areas will be covered thoroughly. Dosimetry will

begin with RBE, LET, f-factors, and will cover NRC and NCRP requirements on MPDs, recordkeeping, and monitoring. Time, distance, and shielding are emphasized throughout the course. Calculator with exponentials required. PREREQUISITES: MM 093, MP 300, MP 146, concurrent with AY 414. Required for AX, open to all students.

Offered Spring Semester

MP 232—UNIVERSITY PHYSICS 2 4 credits

Continuation of MP 132. Topics include: electrostatics, Coulomb's Law, Gauss's Law, Kirchoff's Laws, magnetostatics, Ampere's Law, Faraday's Law and Lenz's Law. Demands command of calculus, vector algebra, and vector analysis, and a 3-hour laboratory. PREREQUISITE: MP 132 & MP 255 (Calculus 2).

Offered Fall Semester

MP 332—UNIVERSITY PHYSICS 3 4 credits

Continuation of MP 232. Topics include: Maxwell's equations, electromagnetic waves, oscillators, physical and geometrical optics (including matrix approach to optics); concepts of special relativity; Bohr model of the atom, introduction to Schrodinger equations, wave functions and probability amplitudes. Three hour laboratory. PREREQUISITE: MP 232 and MM 355 (Calculus 3).

Offered Spring Semester

MP 103—INTRODUCTION TO ASTRONOMY 1 4 credits

General survey course tracing the development of man's conception of the universe and his place in it. Emphasis on recent developments in planetary science and astronomical instruments. Evening laboratories include constellation identification, use of telescopes to observe the moon, planets, and other heavenly objects. Observational class project. Some classes will include use of the Springfield Science Museum Planetarium and Observatory. Field trip to local professional observatory. Evening laboratory. PREREQUISITE: MM 073.

Offered Fall & Spring Semesters

MP 146—RADIATION PROTECTION 1 credit

The nature of ionizing and its biological effect on the human are discussed. The NCR and Commonwealth rules and regulations relating to radiation protection and monitoring of personnel and patient are presented to the level where the student understands risk versus benefit of medical radiation. Radiation detection equipment and instrumentation are presented so that the student knows applicable radiation detection devices for clinical and emergency situations. The human radiobiological response is covered. Open to other students by permission of instructor. PREREQUISITE: MM 093. REQUIRED: AX, AY, AZ.

Offered Fall Semester

MP 300—RADIOLOGIC PHYSICS 4 credits

Topics covered are: basic mechanics, mass, force, energy, work momentum, and SI units. Electrostatics, magnetism, basic electronics, x-ray spectra, and the solid state are covered, with laboratory application in radiology. Special topics are: the nature of the photon, ionizing radiation, and the interaction of ionizing radiation with matter vi scattering, Photoelectric effect, Compton effect, and Pair Production. Radiation attenuation and absorption coefficients are covered in detail. Open to other students by permission of instructor. Laboratory. PREREQUISITE: MM 093.

Offered Fall Semester

MP 321—INTRODUCTION TO LASER PHYSICS 1 credit

This module course is designed specifically for operating room personnel to understand the operation and application of lasers in the surgical suite. The course begins with discussion of the EM spectrum and then expands on the laser regions. The biological interaction at the critical sites of response is discussed, as is risk to patients and to personnel. Applications include: opthalmology, neurosurgery, medical localizers, gynecology, and photostimulation. The FDA recommendations and regulations are discussed. RESTRICTED TO AO.

MP 330—GEOMETRICAL OPTICS 4 credits

This course is the first of a two semester sequence covering basic optical theory and components. Each course consists of three-hour lecture sessions and a three-hour lab. Geometrical optics deals with the rectilinear propagation of light and the elementary treatment of image formation, lenses, mirrors, prisms, fiber optics, ray tracing, aberrations, optical

system design, and optical instruments. The laboratory section parallels the lectures and familiarizes the student with optical laboratory components and procedures. Senior standing.

Offered Fall Semester

MP 400—NUCLEAR PHYSICS 1 4 credits

The first one-third of the course covers nuclear properties of the atom. Energy levels are described with emphasis on unstable nuclei and the resultant radiation processes (alpha, beta, gamma, IC) and then related to the chart of the nuclides. The second third of the course covers the production and detection of radiation with emphasis on medical applications. The last third is a problem-solving quantitative approach to advanced radiation protection. Calculator with exoponentials is required. See description for MP 148 Advanced Radiation Protection. Two-hour laboratory. PREREQUISITES: MM 093. Required for AY, AZ. Open to all students.

Offered Spring Semester

MP 150—INDEPENDENT STUDY PHYSICS 1 1, 2, 3, or 4 credits

Independent study or laboratory project in physics under direction of instructor. Student may propose project or elect to undertake a project of instructor's choice. PREREQUISITE: Permission of instructor.

Offered Fall/Spring/Summer Semester

MP 250—INDEPENDENT STUDY PHYSICS 2 1, 2, 3, or 4 credits

A continuation of MP 150. PREREQUISITE: Permission of instructor.

Offered Fall/Spring/Summer Semester

Plant Science
(*See* Landscape/Plant Science)

Political Science

NI 100—AMERICAN GOVERNMENT AND POLITICS 3 credits

An analysis of the way in which politics & political institutions work in American society. The major problems of American democracy are examined; their political, social and economic implications explored; Constitutional rights & freedoms; the federal power structure; changing governmental instutions. No Prerequisites.

Offered Fall Semester

NI 900—DIRECTED STUDY IN POLITICAL SCIENCE Variable credits

Semester hour credit will vary from one to three, depending upon the written, agreed-upon, approved, student-professor contracts.

Psychology and Student Development

NP 100—GENERAL PSYCHOLOGY 3 credits

This introductory course identifies those scientific methods used to study human behavior. Discussion centers around the contribution of heredity, environment, learning, perception, motivation and emotion in shaping our individual personalities.

Offered Fall & Spring Semester

NP 101, 102, 103—GENERAL PSYCHOLOGY MODULES 3 credits

This three-credit independent study course is divided into three one-credit modules, and offers an independent, flex-time approach to mastering an introductory, college-level discipline. In this course, the student will cover all the same topics presented in STCC's other General Psychology courses, and will use the same text. The testing of a student's comprehension will include an extensive computer-generated test for each chapter with essay questions, as well as a comprehensive examination for each module.

A student may be accepted into NP 101, 102, and 103 (one credit per module) during Registration or Pre-Registration; however, under special circumstances a student may register after a semester is underway.

NP 101—GENERAL PSYCHOLOGY - MODULE 1 1 credit
This module covers general perspectives, careers, scientific study of behavior, states of consciousness, learning by classical and operant conditioning, and memory.

NP 102—GENERAL PSYCHOLOGY - MODULE 2 1 credit
This module includes language theory and development, concept formation, problem solving, and intelligence. It examines motivation and psychological and development. PREREQUISITE: NP 101.

NP 103—GENERAL PSYCHOLOGY - MODULE 3 1 credit
This module explores personality theory and measurement, stress and adjustment, and social psychology. PREREQUISITE: NP 102.

NP 109—HUMAN RELATIONS AT WORK 3 credits
This is a course designed to build a strong self image. Each student has an opportunity to understand that he/she is a functioning human being in the twentieth century and that this is not a task to be taken lightly. He/she will realize that we are all similar in many ways and that we are also different. Hopefully, this course will help the student establish a philosophy of life that will be very helpful in his/her communications and awarenesses of the future.
Offered Fall & Spring Semester

NP 140—PERSONAL DEVELOPMENT THROUGH SELF-DIRECTEDNESS 1 credit
This course is designed to assist individuals in both exploring and energizing their internal power and potential. Topics to be addressed include self-esteem, confidence building, core issues, and assertiveness. In-class exercises will improve the student's ability to identify inner needs and resources, as well as to express and assert one's self. Take-home assignments are geared to enhance maximum growth and development. The course will conclude with an examination of the process of change on both a theoretical and personal basis. Requirements for the course are a desire to feel better about yourself, and an understanding that change is an active process.

NP 300—CHILD & DEVELOPMENTAL PSYCHOLOGY 3 credits
This advanced course examines the major influences on a child's physical, mental and personality development from conception to adolescence. Information is presented in chronological order to give an integrated view of the child at each major phase of development. An examination of the basic theories and contemporary research suggest some answers for more effective parenting. PREREQUISITE: NP 100 or NP 109.
Offered Fall & Spring Semester

NP 400—PRINCIPLES OF NORMAL/ABNORMAL BEHAVIOR 3 credits
A general introduction into the orgin, development, degrees of mental disorganization, and the methods of coping with psychological dysfunction. Inquiry will also be made into the theoretical and applied approaches of several of the major schools of thought with regard to helping services. PREREQUISITE: NP 100. *Offered Fall & Spring Semester*

NP 406—PSYCHOLOGICAL ASSESSMENT OF CRIME 3 credits
This course analyzes the types of people that commit crimes, and presents a psychological profile of the criminal offender. Emphasis is placed on the following criminal situations: arson, rape, terrorism, murder, and political assassination.

NP 409—INTRODUCTION TO INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY 3 credits
The application of basic psychological principles to human problems in industry. Major areas of emphasis will include worker motivation, individual differences, personnel problems, selection and training, job satisfaction, employee attitudes and incentives, industrial mental health, human relations factors and psychological tests used in industry. PREREQUISITE: NP 109 or NP 100. *Offered Spring Semester*

NP 900—DIRECTED STUDY IN PSYCHOLOGY Variable credits
Semester hour credit will vary from one to three, depending upon the written, agreed-upon, approved, student-professor contract.

ND 122, 123, 124—CAREER PLANNING MODULES
This three (3) credit course is divided into one-credit modules. This course will help students to assess their strengths, interests, and values, and to examine their lifestyle.

ND 122—SELF-ASSESSMENT—MODULE 1 1 credit
This module involves understanding of who you are and what is most important to you. Course projects include: career assessment inventories, values clarification, and personal assessment.

ND 123—CAREER EXPLORATION—MODULE 2 1 credit
This module involves identifying some key interest; you are now ready to explore the world around you. Course projects include: guest speakers, informational interviews, and access to resources for job market investigation.

ND 124—CAREER DECISION—MODULE 3 1 credit
This module involves making career decisions. Students will develop effective job campaign strategies which include: resume writing, applications/cover letters, and practicing interviewing on videotape.

Offered Fall and Spring Semester

ND 126, 127—STUDY SKILLS SEMINAR 2 credits
This course, consisting of two modules of five weeks each, is designed to increase student success in college through exposure to efficient study techniques, personal learning styles, and available campus resources. Through lecture, discussion, films, tapes, tours, and self-appraisal inventories, students will learn more about themselves: short and long range goals, self-motivation, anxiety reduction, planning and prioritizing time, study/test-taking skills. Students will also become familiar with the available resources, services, and procedures of the College. A student may register for one or both of the modules during the registration period. A student may register for ND 127 up to five weeks into the semester.

Offered Fall and Spring Semesters

ND 126—STUDY SKILLS SEMINAR—MODULE 1 1 credit
This module covers self-assessment, study habits and skills, time management and planning, scholastic motivation, learning styles, note-taking, thinking skills, and institutional resources at STCC.

ND 127—STUDY SKILLS SEMINAR—MODULE 2 1 credit
This module covers preparing for taking tests, memory and learning, library resources, term papers and writing skills, assertiveness to improve communication skills, self-confidence, anxiety and stress, and relaxation techniques.

Radiation Therapy Technology

AY 104—INTRODUCTION TO RADIATION ONCOLOGY 3 credits
This course begins with an orientation to the profession followed by a discussion of cancer detection, pathology, and disease management, comparing various treatment modalities. Students are introduced to the biological effects of radiation and to the modes of radiation therapy, including a comparative study of teletherapy units, radioisotopes, and teletherapy vs. brachytherapy. Students are introduced to quality assurance procedures as they apply to radiation therapy. RESTRICTED to AY.

AY 208—PRACTICUM 5 credits
During the full-time (40-hour week) summer practicum, students will integrate prior classroom learning with clinical practice. Weekly classes are scheduled for the purpose of case discussion and review. A comprehensive examination is required in August, covering topics included in the first year of study. Grading for the summer sessions reflects both components of the course. The clinical component is graded on a pass/fail basis, with a minimum passing average of 73. Students must pass this component in order to pass the course and sit for the comprehensive exam. For those who pass the clinical component, the final grade for the course will be a reflection of the grade on the comprehensive exam, with a minimum passing grade of 73. Students who do not satisfy the minimum grade requirement will be permitted one exam retake. A second failure will result in withdrawal from the program.

AY 209—DOSIMETRY AND TREATMENT PLANNING 4 credits
This course covers the fundamentals of clinical dosimetry and treatment planning, beginning with a discussion of dosage in radiation therapy, progressing to pre-treatment procedures and to the principles of treatment planning. Consideration is given to a wide range of therapy techniques and modalities, brachytherapy as well as teletherapy; and students develop facility

with dose/time calculations. Principles of practical treatment planning for various body sites are also discussed. PRERQUISITE: AY 104.

AY 304—CLINICAL ONCOLOGY 1 3 credits
This course includes an examination of oncologic pathology and treatment principles, followed by an investigation of cancer of various body sites and systems. Discussion includes etiology, and epidemiology, pathology, staging, symptoms, treatment, and prognosis for each site under consideration, with special emphasis on the role of radiation in cancer management and its relationship to other treatment modalities. PREREQUISITES: MB 232, RESTRICTED TO AY.

Offered Fall Semester

AY 303—RADIOGRAPHIC IMAGING OF HUMAN STRUCTURE 1 credit
This course will provide fundamentals of radiographic exposure techniques, latent image formation, processing of radiographs, and the opportunity to examine human structure as it appears through medical imaging. The course is designed for non-radiographers.

AY 309—CLINICAL ORIENTATION No credit
This is a two-week clinical orientation offered before the start of the academic year to students in the Advanced Standing option. It consists of classroom instruction for 6 hours during each of 2 weeks for a total of 12 hours. There is not credit offered for this orientation, but students must pass a test on the material covered before proceeding to their clinical experience in the fall semester.

AY 312—PRACTICUM 2 credits
This course is a 3-week clinical experience of 37.5 hours per week for students enrolled in the Advanced Standing option. It is scheduled during January intersession.

AY 407—PRACTICUM 5 credits
The final summer practicum involves the integration of two years of classroom learning with clinical practice. The grading will be on the same basis as for the freshman summer (AY 208), except that the comprehensive examination will be a simulated registry exam. Students are required to pass this exam with a minimum grade of 73 in order to pass the course and to graduate. Students who fail will be allowed one retry. Students failing a second time have the option of enrolling for an additional semester in Independent Study (AY 415).

AY 408—CLINICAL ONCOLOGY 2 2 credits
This course concludes the discussion of the etiology, epidemiology, pathology, staging, symptoms, treatment, and prognosis of cancer with respect to body sites and systems. PREREQUISITE: AY 304, RESTRICTED TO AY.

Offered Spring Semester

AY 415—INDEPENDENT STUDY
This is a course of directed review and study for students who have completed all the course requirements in Radiation Therapy Technology but who have failed to pass the simulated registry examination as required for graduation. Successful completion of this course with a passing grade on a comprehensive examination will enable such students to graduate.

AY 103, AY 207, AY 301, AY 311, AY 312, AY 401—PRACTICUM 2, 3, 5, 2, 5, 5 credits
Supervised clinical experience is provided in the Radiation Therapy Department of an affiliated hospital under the direction of qualified staff technologists. Students accumulate approximately 1800 hours of clinical training, including a one semester rotation through the Physics Department, and optional rotations through Radiology and Nuclear Medicine. RESTRICTED TO AY.

Radiography

AX 001—CLINICAL ORIENTATION 1 No credit
This course provides an introduction to the affiliate, the affiliate policies and procedures, and the affiliate Radiology Department. The course is designed to assure the affiliated hospital that the students will not compromise their high standards of health care. Clinical Orientation 1 is a prerequisite for Clinical Practicum 1.

Offered Winter Intersession Only

AX 111—RADIOGRAPHIC POSITIONING 1 4 credits
This course provides the basis for performing anatomic positioning. Anatomic positioning is the "art" of radiography. The final product, the radiograph, is dependent upon proper anatomic positioning, as well as the proper technical factors. The ultimate purpose of all positioning is to visualize specific parts of the body, free from superimposition of anatomic structures. This course will include development of psychomotor skills in the application of ionizing radiation to produce diagnostic radiographs of the appendicular skeleton. PREREQUISITES: LD 095, MM 093 or their equivalent, concurrent AA 101, AA 210, MB 132 and AX 112.
Offered Fall Semester

AX 112—IMAGE PRODUCTION AND EVALUATION 2 credits
An introduction to the basic imaging techniques including an examination of the recording media used, i.e. filem tape, selenium plates and TV. Manual and automatic processing is covered along with intensifying screens, and the characteristics of the image, density, contrast, detail, and distortion. PREREQUISITE: MM 093 or equivalent.
Offered Fall Semester

AX 211—RADIOGRAPHIC POSITIONING 2 4 credits
This course is a continuation of AX 111, Positioning 1. It deals with the anatomic positioning of the spine and the ribs. Also, assisting the Radiologist in contrast instillation during exams of the urinary system, gastrointestinal, and bilary tracts. PREREQUISITES: AX 111, AX 112, and MB 132.
Offered Spring Semester

AX 212—EQUIPMENT OPERATION AND MAINTENANCE 2 credits
Sequential to AZ 112 - an in-depth examination of the equipment used in radiography, starting with the x ray tube and the rectifying circuit, tube ratings, and the cooling charts for multiple exposures, phototiming, image infesification, stereography, and tomography. Problem solving for different grids is covered. PREREQUISITE: AX 112.
Offered Spring Semester

AX 213, 214, 313, 415, 416—CLINICAL PRACTICUM 1, 2, 3, 4, AND 5
2, 5, 3, 3, 5 credits
These courses provide a structured clinical experience to assist the student in the application of didactic and laboratory practice in clinical settings, under the supervision of registered technologists. This experience includes an examination of the student's competence, and a continuing evaluation of his professionalism. Clinical Orientation 1 and 2 are required prior to Clinical Practicum 1 and 4, respectively. Successful completion of each course is required to progress to the next practicum.
NOTE: Clinical orientation is offered during the Winter Intersession only.
Offered Spring, Summer, Fall, Spring, Summer Semesters

AX 311—SPECIAL PROCEDURES IN RADIOGRAPHY 2 credits
A highly-trained team of professionals is necessary to successfully execute the techniques required to obtain diagnostic information during a special procedure. Special procedures are commonly employed to visualize the vascular system or similar hollow organs or vessels. This course will deal with the procedures, the equipment utilized, and the preparation and performance of the procedures. PREREQUISITES: MB 231, AX 111, AX 211 concurrent AX 313, AX 314.
Offered Fall Semester

AX 314—RADIOGRAPHIC POSITIONING 3 3 credits
This course is a continuation of AZ 211, Positioning 2. It deals with the positioning of the cranium and special views (projections) of the anatomic structures in AX 111 and AX 211. The major emphasis will be placed on the various positions of the cranium. PREREQUISITES: AX 211, MB 232.
Offered Fall Semester

AX 411—RADIOLOGIC PATHOLOGY 1 credit
This course will provide the student with an introduction to the concepts of disease. The recognition of gross pathology and its relevance to modifying radiographic procedures. PREREQUISITES: AX 314, AX 212, and AX 314.
Offered Spring Semester

AX 412—ANCILLARY THEORY AND PROCEDURES 1 credit
A detailed examination of those aspects of radiology not normally included in a structured curriculum. Included will be: computerized axial tomography, nuclear magnetic resonance, (MRI), digital radiography, advanced calibration, sonography, nuclear medicine, therapy, etc. RESTRICTED TO: AX, AY, and AZ.

Offered Spring Semester

AX 413—SEMINAR/QUALITY CONTROL 3 credits
This course will provide the procedures followed in a quality control program, and will examine the benefits of such a program to the radiology department. Also, a review of the entire curriculum of the program, including film critique, will be provided. PREREQUISITES: AX 311, and AX 314.

Offered Spring Semester

AX 414—RADIATION BIOLOGY 1 credit
This course includes a detailed examination of the effects of radiation on the cell, the systems, and the human being, including both long-term and short-term effects, somatic and genetic effects. PREREQUISITES: MB 132, MB 232, and MP 146.

Offered Spring Semester

Respiratory Care

AR 104—INTRODUCTION TO RESPIRATORY CARE 3 credits
This introductory course includes a study of cardiopulmonary anatomy/physiology, arterial blood gas interpretation, introduction to cardiopulmonary disease, medical terminology, and ethics. The course is designed to provide the student with fundamental knowledge and theory which will enable the student to understand the more complex theories and practice of respiratory care in subsequent courses.

Offered Fall Semester

AR 105—RESPIRATORY CARE 1 4 credits
This course is designed to be an in-depth study of respiratory therapy equipment and the physical principles involved in their use. Emphasis will be placed on the adaptation of physical principles to the manufacture of equipment and the clinical application of respiratory equipment. Among areas to be discussed are: primary systems, cylinders, piping systems, gas administration devices, gas controlling devices, analyzing devices, resuscitators, gas physics, and bedside measurement and monitoring devices. The didactic portion consists primarily of lectures, and the clinical hours provide for application of principles learned in the classroom.

Offered Fall Semester

AR 205—RESPIRATORY CARE 2 4 credits
This is the second part of a two-semester course which integrates physical principles with their application to clinical equipment. Application of humidity and aerosol equipment, cleaning and sterilization procedures, fluidic devices, and mechanical ventilators will be discussed. The didactic portion consists primarily of lectures, and the clinical hours provide for application of principles learned in the classroom. PREREQUISITES: AR 104, AR 105, MB 132, MB 140.

Offered Spring Semester

AR 206—RESPIRATORY PHARMACOLOGY 3 credits
This course is an extensive study of general applications, contraindications, indications, and hazards of pharmacological agents used in the treatment of cardiopulmonary disease. Calculation of dosages and mechanical means of application of medication will be covered. PREREQUISITES: AR 104, AR 105, MB 132, MB 140.

Offered Spring Semester

AR 213—RESPIRATORY REHABILITATION 6 credits
A study of rehabilitative techniques and home care. The course concentrates on chronic pulmonary disease. Content areas will include symptoms, evaluation, patient education, modalities, and medication. Students will be presented with a comprehensive study of rehabilitative techniques. The didactic portion consists primarily of lectures, and the clinical hours provide for application of principles learned in the classroom. PREREQUISITE: AR 104, AR 105, MB 132, MB 140, AR 205, AR 206, MB 232, MB 121.

Offered Summer Session

AR 303—INTENSIVE RESPIRATORY CARE 3 credits
An in-depth study of the principles of continuous mechanical ventilation. Theory/application of mechanical ventilation will be discussed in detail. PREREQUISITES: AR 104, AR 105, MB 132, MB 140, AR 205, AR 206, MB 232, MB 212, AR 213.

Offered Fall Semester

AR 305—PULMONARY FUNCTION TESTING 3 credits
This course will examine in detail equipment, diagnostic testing, interpretation, and the patterns of various respiratory diseases. Students learn how to use equipment in various pulmonary function labs. PREREQUISITES: AR 104, AR 105, MB 132, MB 140, AR 205, AR 206, MB 232, MB 121, AR 213.

Offered Fall Semester

AR 306—RESPIRATORY CARE APPLICATION/CLINICAL SCIENCES 1 2 credits
This course is offered over two semesters, and encompasses respiratory anatomy and physiology designed to prepare the student for clinical judgment in respiratory care. Topics related to respiratory function, acid-base balance, and disease processes are included. PREREQUISITIES: AR 104, AR 105, MB 132, MB 140, AR 205, AR 206, MB 232, MB 121, AR 213.

Offered Fall Semester

AR 307—RESPIRATORY CARE 3 6 credits
An extensive study of the principles and theories of IPPB, chest physiotherapy, airway care, incentive spirometry, breath sounds, oxygen toxicity, CO poisoning, and chemical inhalation. Equipment and current trends in these areas will be examined. Integration of the various modes of therapy and their clinical application is discussed. The didactic portion consists primarily of lectures and the clinical hours provide application of principles learned in the classroom. PREREQUISITES: AR 104, AR 105, MB 132, MB 140, AR 205, AR 206, MB 232, MB 121, AR 213.

Offered Fall Semester

AR 405—RESPIRATORY CARE 4 3 credits
The clinical, bedside, and laboratory application of respiratory care is presented, utilizing the facilities of affiliated clinical sites and College laboratory under supervision of hospital respiratory care practitioners, physicians, and College faculty. Clinical affiliation is designed to expose students to an environment in which they can practice respiratory care. PREREQUISITES: AR 104, AR 105, MB 132, MB 140, AR 205, AR 206, MB 232, MB 121, AR 213, AR 303, AR 305, AR 306, AR 307.

Offered Spring Semester

AR 406—RESPIRATORY CARE APPLICATION AND CLINICAL SCIENCES 2 4 credits
This is the second part of a two-semester course encompassing respiratory care anatomy/physiology and disease process. The didactic portion consists primarily of lectures and the clinical hours provide for application of principles learned in the classroom. PREREQUISITES: AR 104, AR 105, MB 132, AR 205, AR 206, MB 232, MB 121, AR 213, AR 303, AR 306, AR 306, AR 307.

Offered Spring Semester

AR 407—NEONATAL/PEDIATRIC CARE 2 credits
This course will focus on the compromised neonatal and pediatric patient. The anatomy and physiology of these patients is presented as a foundation for assessment and care. The evaluation, management, and monitoring of these patients with respective disease or with some other disorder that compromises the respiratory system will be discussed in detail. PREREQUISITES: AR 104, AR 105, MB 132, MB 140, AR 205, AR 206, MB 232, MB 121, AR 213, AR 306, AR 303, AR 305, AR 307.

Offered Spring Semester

AR 408—HEMODYNAMIC MONITORING 3 credits
This course is an extensive and thorough study in EKG interpretation and cardiac monitoring. Indications and practical application of monitoring equipment as well as the interpretation and significance of test results will be included. Cardiopulmonary physiology, SwanGanz/central venous pressure measurement will be included. PREREQUISITES: AR 104, AR 105, MB 132, AR 205, AR 206, MB 232, MB 121, AR 213, AR 303, AR 305, AR 306, AR 307

Offered Spring Semester

Robotics Technology
Option to Electrical Technology

EE 140—BASIC PROGRAMMING FOR MICROCOMPUTERS 3 credits

This is an introductory course requiring no previous knowledge of microcomputers. The course contains two distinct topics: microcomputer fundamentals, and BASIC programming on microcomputers. Microcomputer fundamentals topics will include what is a computer and its basic components and how they work together to form an operating system. Programming in BASIC topics will include simple and subscripted variables, input and output, if then/go to/gosub, and fornext control statements. Read data and algorithms relating to sorting data.

Offered Fall Semester

EE 240—FUNDAMENTALS OF MOTOR CONTROL 3 credits

This is a second semester course, and an understanding of D.C. fundamentals is required. The course covers devices, circuits, materials, motors and generators, controls, and transformers, with the emphasis on controls. Topics to be covered in the controls area are: start stop three wire control, start stop and job three wire control, and forward and reverse control circuits. The laboratory is a required part of the course, and is a reinforcement of the topics presented in class. PREREQUISITE: Department Chair's approval.

Offered Spring Semester

EE 340—ROBOTICS 1 3 credits

The purpose of this course is to provide an overview of Robotic Technology. It explores the basic principles of senior systems, data acquisition systems, control systems, and actuation systems. One aspect of the course that makes it unique is the attention given to hardware, which makes this course practical for technicians. The course requires an understanding of basic electrical concepts and a working knowledge of the BASIC computer language. The laboratory will be used to perform real time exercise in microcomputer applications in controlling robotics using the BASIC language. PREREQUISITE: EE 110, EE 210, EE 140, EE 330.

Offered Fall Semester

EE 350—PROGRAMMABLE MOTOR CONTROLS 3 credits

Control systems for electric motors are vital for the proper performance and protection of modern plant equipment. The programmable controller or PC is fast replacing many of the older relaying type logic systems; for this reason, this course deals only with programming of a modern PC. Basic relay type logic is required for this course since the PC will be used as a tool to simulate the older style relaying circuit. The laboratory associated with this course will be necessary for the complete understanding of a programming the PC and how PC interfaces with the modern industrial plant control systems. PREREQUISITES: EE 110, EE 210, EE 240.

Offered Fall Semester

EE 470—CONTROL SYSTEMS THEORY 3 credits

This is a senior course covering control system concepts in a general way. The concepts are based on the expansion of commonly known electrical phenomena such as resonance and damping, and relies heavily on a good understanding of the time constant. The electrical circuit elements are replaced later with their mechanical counterparts or equivalents, and the solution of electro-mechanical system performance is then completed. Topics to be covered are closed-loop systems, network response, lag networks, lead networks, Laplace transforms, servo motors, transfer function, and open loop systems.

Offered Spring Semester

EE 480—ROBOTICS 2 3 credits

This is a continuation of Robotics 1. New topics to be covered will include programming in Assembly language, trouble-shooting the robot's on-board systems, electrical and mechanical maintenance, and experimenting with different interface techniques between the computer and the robots. PREREQUISITE: EE 340.

Offered Spring Semester

Small Business Management Option
(*See* Business Administration)

Social Sciences
(*See* Economics, History, Sociology/Anthropology, Psychology and Education, Political Science)

Sociology/Anthropology

NS 100—INTRODUCTION TO SOCIOLOGY 3 credits
An introductory course designed to acquaint the student with a working knowledge of the concepts used by sociologists and with the well-established generalizations in the field. Topics to be studied include socialization, culture, population, group processes and social stratification.

Offered Fall & Spring Semester

NS 110—INTRODUCTION TO ANTHROPOLOGY 3 credits
A general introduction to social and cultural anthropology which will explore among the diverse cultures of the world some of the possible variations in technology, economics, social and political organization, art, religion and ideology. Each year the world grows smaller in each area of communication, transportation, and general economic interdependence. However, an understanding of cultural differences among the people of the world is often lacking. Cultural anthropology provides a systematic description and comparison of the ways of life of groups of people throughout the world. An appreciation of the solutions to human problems developed by other cultures allows not only greater perception of our own way of life, but also of the values and goals of others. The fundamental objective of this course is to provide insight into various ways that people respond to basic human needs.

Offered Spring Semester

NS 160—MULTICULTURAL/MULTIETHNIC U.S.A. 3 credits
This interdisciplinary course stresses the importance of a cross-cultural approach in understanding the vast and rich historical contributions of the diverse ethnic and cultural groups that have influenced the American experience. Students learn to appreciate their own ethnic and cultural/familial backgrounds, as well as those of other selected ethnic groups prevalent in the community. A special unit is devoted to Hispanics, the second largest group in the United States, in an effort to understand the sociocultural and linguistic barriers that affect health values, beliefs, and practices. Not offered every year.

Offered Fall Semester

NS 200—SOCIAL PROBLEMS 3 credits
This course applies the principles and concepts of sociology to selected aspects of contemporary American society, such as the areas of poverty, crime, urban change, population, alchoholism, role redefinitions, minority group relations and drug addiction. PREREQUISITE: NS 100 or NS 110.

Offered Fall & Spring Semester

NS 250—SOCIOLOGY OF THE FAMILY 3 credits
The course will focus on the historical development and change of the family, its structure and functions and its relationship to the other major institutions of society. Although the primary focal point will be the American family, cross-culture comparison will be used especially in the study of marriage and kinship practices. Strong emphasis will also be placed on family change and the family as a social problem including such topics as the single parent, changing sex roles and communes. PREREQUISITE: NS 100 or NS 110. Not offered every year.

Offered Fall & Spring Semester

NS 300—SOCIOLOGY OF AGING 3 credits
This course examines aging as a social phenomenon in the Untied States. Topics include social factors in the aging process, statistical distribution and ecological conditions of aging, and economics, public policy and politics as they relate to old age. PREREQUISITE: NS 100 or NS 110.

Offered Fall Semester

NS 900—DIRECTED STUDY IN SOCIOLOGY/ANTHROPOLOGY Variable credits
Semester hour credit will vary from one to three, depending upon the written, agreed-upon, approved, student-professor contract.

Spanish
(*See* Foreign Languages)

Surgical Technology

AO 100—ORT 1 5 credits
A combined lecture and laboratory course which develops competency in and performance of certain generally accepted routine procedures and techniques. Units in this course include: related nursing procedures, medical terminology, human relations, modules of specific aspects of first aid, and cardiopulmonary resuscitation.

Offered Fall Semester

AO 200—ORT 2 5 credits
A continuation of AO 100. This course is a combined lecture and laboratory course in which the student will learn aseptic techniques, instrumentation, draping techniques, positioning, etc. in preparing for field experience. PREREQUISITE: AO 100.

Offered Spring Semester

AO 301-303—ORT 3 9 credits
A general course presenting material in sequence that will coincide with the practical experience of the technician in the operating room, and delivery room, under the direct supervision of Registered Professional Nurses. Students will be scheduled for clinical affiliation upon completion of Semester 1 and 2 requisites.

Offered Fall Semester

AO 302—PHARMACOLOGY/ORT 3 credits
This course provides a background in the drugs used in the operating room, emergency room and delivery room. Handling, preparation, dosage, contra-indication and topic effects are stressed. PREREQUISITES: Completing Semester 1 and 2.

Offered Fall Semester

AO 400—SEMINAR/SURGICAL 3 credits
This course provides the total picture of the surgical patient in the operating room. Units in this course will include: potential complications of surgery, bio-medical instrumentation, radiation, oncology, etc. A review and discussion of the student's field experiences are an integral part of this course. PREREQUISITES: AO 301-303.

Offered Spring Semester

AO 401-402—ORT 4 10 credits
This course provides theoretical background to prepare an operating room circulator technician. Advanced operating room techniques, supervisory skills, interpersonal relationships, circulation duties, procedure analysis and ethics are included. A rotating clinical experience through surgical specialties which deals with: plastic surgery, opthalmic surgery, neurosurgery, orthopedic surgery, urological surgery, vascular and chest surgery. PREREQUISITE: Completing Semesters 1, 2, and 3

Offered Spring Semester

Telecommunications Technology

GT 111—FUNDAMENTALS IN TV WRITING 4 credits
In this course, students learn the fundamental principles of writing for television. Writing for drama, commercials, news, and public affairs are covered. Students are taught how to write straight, still-picture, and moving picture copy. Writing for sound-on-film and video are also stressed. The traditional video cues for directors are also taught. Students in this course do a considerable amount of writing, and will find this course one that will improve their overall writing ability.

Offered Fall Semester

GT 120—VIDEO TECHNIQUES 3 credits
An overview of the prime skills which video production utilizes, such as planning, writing, practicing, staging, camera handling, audio pickup, video switching, mixing, lighting, and editing. Each week a new one of these elements is presented in a lecture-demonstration, followed by practice sessions in the studio. Emphasis is placed on competency in operating the equipment, and efficiency in the use of time.

Offered Fall Semester

GT 130—VIDEO PRODUCTION 3 credits
During the first part of the semester, each student plans and directs a two-camera video demonstration of how-to-do some particular task, the subject being of their choice. In the second part of the semester, five student production crews are formed. Each crew produces a mini-documentary on a topic of current news interest, using electronic field production equipment for a major portion of the program.

Offered Fall Semester

GT 140—COMMUNICATION IN TODAY'S WORLD 3 credits
In this course the wide spectrum of communications—from interpersonal to space communications satellite—is explored. The question as to how good human relations helps to develop good TV programming is examined. The course also deals with the nature of television, exposing its acknowledged attributes. Understanding the nature of TV can help a professional channel the power of television in directions that will help and not hurt viewers. It is hoped those who take the course will develop a respect for TV's potential power.

Offered Fall Semester

GT 210—ADVANCED TV WRITING 3 credits
This course is devoted to script writing for production. What is produced will be considered airable. Much of the class time is devoted to writing, based on exercises designed and offered by the instructor.

Offered Spring Semester

GT 220—TV PRODUCING AND DIRECTING 3 credits
Emphasizes the functions of producers and directors who have the financial and creative responsibilities in production. Topics covered are: staging actions, marking scripts, placing cameras, directional decisions, uses of music and effects, video editing and dubbing, quality control, and post-production revision. Making accurate estimates of time and costs involved in video production is practiced. Four student crews, each produce and direct a dramatic program designed by the instructor.

Offered Spring Semester

GT 230—SPEAKING ON TV 3 credits
Essentially a speech course, but geared to television presentation. The student learns how to communicate to an audience while on camera. Doing commercials, the news, interviewing, hosting panels are stressed. The micro teaching method is employed to evaluate each student's performance.

Offered Spring Semester

GT 240—ANALYSIS OF COMMERCIAL & PUBLIC TV 3 credits
This course explores the anatomy of both commercial and public television, checking out their history, their societal commitments, how they function and how they subsist. Their differences and similarities are exposed. Some practical tips as to how to succeed to both sectors are offered.

Offered Spring Semester

GT 310—INSTRUCTIONAL TV TECHNIQUES 3 credits
On the premise that instructional video is produced in order to influence its audience, the psychology of the general viewer is examined by means of insights from the social sciences. Techniques found effective in TV advertising are adequate to instructional purposes, with guidance from the nationally seen C.T.W. production. During the studio laboratory portion of this course, practice is gained in the use of chroma-key, waveform monitoring, photographic inputs, and advanced VTR/VTR editing controllers.

Offered Fall Semester

GT 321—TV JOURNALISM 3 credits
The fundamentals in editing (assignment development and newscast production), writing and rewriting and producing are stressed, as well as learning how to capture news with film and video tape. Reporting and interviewing exercises are offered. Through this course students learn to compile information and collate it, unearth evidence and appraise it, budget their time and energy and develop an appreciation for accuracy. This course is primarily a studio laboratory course consisting of 1 lecture hour and 3 hours of studio laboratory time.

Offered Fall Semester

GT 331—TV PRODUCTION PRACTICUM 3 credits
This course is taken at WGBY-TV or any other broadcasting, cable, industrial, medical or educational TV center. Students work studio camera, learn to operate video tape machines, work on console board, learn to operate slide and film chain machines. The station's professional staff teaches this course.

Offered Fall Semester

GT 410—INSTRUCTIONAL TV PRODUCTION 4 credits
The class divides into three groups, each of which produces a magazine-format informational video program on a different topic. Each student in a production group writes, produces, and directs his own individual short part of his group's program. Thus, each student has a subsection of an assembled program for which he/she was solely responsible. Students are urged to keep a copy of this work for resume use.

Offered Spring Semester

GT 421—ADVANCED TV JOURNALISM 2 credits
This is a studio laboratory course where much time is devoted to hands-on, advanced editorial techniques using the latest in electronic media communications equipment. Six laboratory hours per week.

Offered Spring Semester

GT 431—ADVANCED TV PRODUCTION PRACTICUM 2 credits
Working as a production assistant on WGBY's regular TV shows, or working in a similar capacity at Channels 22 and 40, or any other broadcasting, cable, industrial, medical, or educational TV center.

Offered Spring Semester

GT 440—CABLE TELEVISION 3 credits
Explores cable television distribution in terms of its potential to serve the public interest. Major topics are: technical characteristics of cable and broadcast compared, economics of paying for TV by advertising or by direct payment public-access to cable channels, the rise of specialized cable networks fed by satellites, digital signal-return via cable to central computers, and housetop satellite receivers.

Offered Spring Semester

Word Processing
(Options to Executive Office Administration and Legal Office Administration; *See* Office Administration)

Word Processing Management
(*See* Office Administration)

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Student
Southeastern Mass. University
North Dartmouth

Administrative Directory

Administrative Offices			
President	Andrew M. Scibelli	16/233	3841
Exec. Vice Pres./Academic Affairs	John H. Dunn	16/223	3845
Dean of Administrative Services	Cheryl G. Baraldi	16/205	3802
Dean of Admissions/Public Relations	Ray M. DiPasquale	16/121	3855
Dean of Community Services	Teresa A. Burr	15/SSC	3868
Dean of Continuing Education	Thomas Holland	15/SSC	3863
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Director of Computer Services	L. Douglas Walter	17/325	3350
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Staff Asst./Sec. to the President	Gladys S. Hardy	16/233	3841
Academic Division Chairpersons			
Business Administration	Donald Bready	2/215	3324
Engineering Technologies	John R. Warner	17/205	3501
General Studies/Developmental Education	Judith Siciliano	15/200	3477
Health/Human Services	Mary E. O'Leary	20/202	3609
Humanities	Jewel Rentzschke	13/104	3655
Math, Sciences & Engineering	Jack Barocas	17/315	3322
Nursing	Eileen Neville	20/303	3505
Social Sciences	Carol Roberts	17/329	3351
Academic Support Services			
Assistant Dean of Academic Affairs	Richard C. Parkin	16/337	3460
Assistant Dean for Development	Gail Carberry	16/331	3842
Asst. Dean of Cooperative Education and Placement	Peter L. Martinello	16/285	3807
Registrar	Athena Verros	15/SSC	3857
Director of Library Services	Tamson Ely	27/101	3302
Reference Librarian	Barbara Wurtzel	27/121	3478
Audiovisual Librarian	Lynn Kleindienst	27/121	3484
Director of Academic Computing	Francis D. Driscoll	16/293	3720
Director of Bilingual Services	Beatrice Szlajen	16/148	3482
Director of Institutional Research	Lucie K. Lewis	16/331	3832
Director of Special Projects	Joseph Capozza	16/339	3871
Director of H.C.O.P.	Raymond Blair	20/108	3895
Director of A.H.E.C.	Sue C. Tenorio	15/204	3897
Director of R.E.A.C.H.	Pamela Boateng	16/285	3771
Executive Director, STCC Foundation	Paul J. Greeley	16/257	3873
Director of Special Academic Projects	Paula Nowick	16/325	3876
Assistant Director of Grants & Development	J. Stanley Cummings	16/331	3880
Administrative Services			
Asst. Dean of Administrative Services	Daniel A. Pascone	16/203	3806
Comptroller	Tim Braim	16/203	3812
Superintendent, Bldgs. and Grounds	Albert Desautels	16/203	3301
Chief of Security	Francis Perusse	7	3800
Staff Asst., Administrative Serv.	Richard Kretschmar	16/216	3317
Staff Asst., Administrative Serv.	Alicia Wilk-Haluch	16/203	3861
Admissions/Public Relations Services			
Assoc. Dir. Admissions/Transfer Affairs	Patrick Tigue	16/107	3882
Director of Publications/Media Relations	Setta A. McCabe	16/247	3830
Student Services			
Assistant Dean of Students	John A. D'Orazio	16/127	3883
Director of Financial Aid	Joel A. Friedman	15/SSC	3813
Director of Student Activities	Michael Van Dyke	8	3828
Director of Veterans Affairs	David Sarrette	15/SSC	3869
Director of Athletics	J. Vincent Grassetti	8	3511
Director of Counseling	Kent A. Goodchild	16/111	3816
Counselor for Handicapped	Mary Moriarty	16/109	3827
Asst. Director of Financial Aid	Marilyn Sutin	15/SSC	3818
Financial Aid Counselor	Mary Forni	15/SSC	3817
College Nurse	Joan Richers	16/105	3510
Division of Continuing Education			
Director of Con., Seminars, Special Interest	Mary Breeding	15/SSC	3865
Staff Asst., GED & Testing Coordinator	Felicita Mazzuchelli	15/SSC	3867

Note: "SSC" refers to the Student Services Center, first floor of Garvey Hall South.

Department Chairs/Program Coordinators

Art	Edith Bugbee	28/211	3754
Automotive Technology	Richard Cormier	25/200	3757
Biological Sciences	James Curran	02/526	3513
Bio-Medical Instrumentation Technology	Kenneth Dupont	20/522	3508
Business Administration	John Godfrey	02/213A	3326
Chemistry	Stanley Shore	17/229	3343
Civil Engineering Technology	William Tuthill	17/302	3380
Computer Information Systems/Data Proc.	Victor Bouchard	02/212A	3329
Computer Maintenance Technology	Gary Mullett	17/635	3435
Computer Science Transfer	Oliver Wallock	17/337	3356
Cosmetology	Marilyn Stevens	20/322	3503
Dental Assistant	Carol Giaquinto	20/203	3633
Dental Hygiene	Denise Ryan	20/240	3504
Developmental English	David Winsper	13/217	3674
Drafting Technology	Otto Paradzick	28/204	3752
Early Childhood Education	Sally Curtis	13/304	3658
Economics	Siegfried Rentzschke	17/237	3347
Electrical Technology	Richard Sturtevant	20/120	3531
Electronic Technology	Gary Mullett	17/635	3435
Engineering and Science Transfer	Oliver Wallock	17/337	3356
English	John Gately	13/210	3668
Environmental Technology	William Gaitenby	13/325	3657
General Studies	Judith Siciliano	15/200	3477
Graphic Arts Technology	William Gibbs	14/101	3766
Heat/Power/Air Cond. Technology	Robert Bujak	32/103	3761
History/Political Science	Thomas Boyle	17/335	3355
Human Services Associate	Mary K. Bennett	20/352	3520
Landscape/Plant Science Technology	H. Alan Crowe	17/339	3357
Laser Electro-Optics Technology	Gary Mullett	17/635	3435
Law Enforcement/Criminal Justice	Bert Scannapieco	17/225	3325
Liberal Arts Transfer	Mary Donovan	17/219	3327
Mathematics	James McDonald	17/409	3371
Mechanical Tech.	Otto Paradzick	28/204	3752
Medical Assistant	Marilyn Pooler	20/332	3517
Medical Laboratory Technician	Joanne Cerrato	20/350	3516
Microprocessing Technology Option	Gary Mullett	17/635	3435
Music	Anne Lemieux	13/115	3663
Nuclear Medicine Technology	Susan Barone	20/207	3502
Nursing	Eileen Neville	20/303	3505
Office Administration	Beverly McCarthy	02/214A	3545
Philosophy	Cherry Michelman	17/227	3342
Physical Therapist Assistant	Elizabeth Burke	20/320	3539
Physics	Henry Salz	17/304	3381
Psychology	Edward Moriarty	17/335	3355
Radiation Therapy Technology	Julianne Morrison	20/420	3525
Radiography	Richard Pushkin	20/424	3547
Respiratory Care	Lee Robinson	20/422	3526
Robotics Technology Option	Richard Sturtevant	20/120	3531
Sociology/Anthropology	Mary Jane Pi-Sunyer	17/235	3346
Surgical Technology	Kathleen Flynn	20/344	3521
Telecommunications Technology	Nathan Rutstein	02/716	3653

Administration, Faculty, and Professional Staff

Abbott, Hilton M., B.S., University of Vermont; M.S., Eastern Michigan University, Physics.

Albano, Roberta, A.S., Westbrook College; R.D.H., B.A., Springfield College; M.Ed., Springfield College; Dental Assistant

Allen, Mary C., B.A., Regis College; M.Ed., Westfield State College; Early Childhood Education

Andrew, Kathleen, B.A., Trinity College; M.A., Boston College, Developmental English

Angers, Homer R., B.S., Westfield State College; Automotive Technology

Apostol, Edna, B.S., University of Puerto Rico; Coordinator, AHEC/REACH Program Director

Arnold, Cheryl, B.F.A., Massachusetts College of Art; Graphic Arts Technology

Baraldi, Cheryl, B.A., University of Massachusetts; M.B.A., Western New England College, Dean of Administrative Services

Baraldi, Robert, B.S., University of Massachusetts; M.B.A., Western New England College, Computer Information Systems/Data Processing

*Barocas, Jack, B.S., Brooklyn College; M.S., University of Massachusetts; Ph.D., University of Massachusetts, Chairman, Division of Math, Sciences & Engineering

*Barone, Susan W., A.S., Middlesex Community College; Cert., Henry Ford Hospital; B.S., Eastern Michigan University, Nuclear Medicine Technology

Barry, Daniel P., B.S., University of Massachusetts; M.Ed., University of Massachusetts, Landscape/Plant Science Technology

Barry, Sally E., B.S., University of Maine; M.Ed., Westfield State College, Nursing

Barton, Allan B., B.S., University of Minnesota; M.S., University of Connecticut, Mechanical Technology

Barufaldi, Paul, B.A., American International College, Bio-Medical Instrumentation Technology

Beauchemin, Lillian Morrison, B.S., Western New England College; M.S., Western New England College; Computer Information Systems/Data Processing

Bellucci, Margaret, A.S., Springfield Technical Community College; B.S., Western New England College; M.S., University of Hartford, Business Administration

Belton, Linda, A.S., Springfield Technical Community College; B.S., American International College; M.Ed., Cambridge College; Office Administration

*Bennett, Mary K., R.N., Springfield Hospital School of Nursing; B.S., Our Lady of the Elms College; M.S., Springfield College, Human Services Associate

Bennett, Mary L., B.A., Mt. Holyoke College, Biological Science

Bialas, Anthony J., A.A., Morton Junior College; B.A., Northern Illinois University; M.A., Northern Illinois University, English

Bigos, Edward, B.S.E.E., Western New England College; Computer Maintenance Technology

Blair, Raymond, B.A., University of Massachusetts; M.Ed., Springfield College; Director, Health Careers Community

Blake, Rita L., B.S., Bridgewater State College; M.Ed., Westfield State College, Computer Information Systems/Data Processing

Boiselle, Richard P., B.S.N., American International College; Nursing

Boateng, Pamela, B.S., Springfield College; Coordinator, Springfield AHEC/ REACH

Bonemery, Anne M., B.A., American International College; M.A.T., American International College; Certified in English, Bilingual English, Spanish, Bilingual Spanish, French, Bilingual French; Developmental English

*Bouchard, Victor, B.S.M.E., Western New England College; M.B.A., Western New England College, Computer Information Systems/Data Proc.

Bowler, Sheila, Diploma, Mercy Hospital School of Nursing; B.S., American International College; M.S., University of Massachusetts; Medical Assistant

*Boyle, Thomas J., B.S., Holy Cross College; M.A., American International College; M.A., University of Massachusetts; Ph.D., University of Connecticut, History/ Political Science

Braim, Tim, B.S., Rider College; C.P.A., Pennsylvania and New Jersey; Comptroller

Bready, Donald F., B.B.A., University of Massachusetts; J.D., Western New England College; L.L.M., Boston University, Chairman, Division of Business Administration

Breeding, Mary M., B.S., University of Florida; M.S., Virginia Commonwealth University; Director of Conf., Seminars, Special Interest

Brown, Jeanette, B.A., University of Massachusetts; General Studies

Brown, Maronda V., B.S., Springfield College; M.Ed., Springfield College; Health Career Community

Buckley, Douglas M., A.S., Springfield Technical Community College; B.S. Westfield State College; Voc. Ed. Cert. in Electronics; Robotics Technology

*Bugbee, Edith M., B.F.A., University of Massachusetts; M.A.T., University of Massachusetts, Art

Budd, Steven G., B.S., University of Massachusetts; M.B.A., University of Massachusetts; Project Coordinator, Cooperative Education/Career Placement

Bugbee, E. John, B.A., American International College; M.A., American International College, Chemistry

*Bujak, Robert J., A.S., Springfield Technical Community College; B.S., Central Connecticut State College; M.Ed., Westfield State College; Heat/Power/Air Conditioning Technology

*Burke, Elizabeth F., M.C.S.P., Edinburgh School of Physiotherapy; M.S., University of Massachusetts; Physical Therapist Assistant

Burns, Richard F., B.S., University of Massachusetts; M.A.T., American International College; Mathematics

Burr, Teresa A., B.S., Springfield College; M.Ed., Springfield College, Dean of Community Services

Camerota, Nicholas, B.A., American International College; M.A., American International College, Psychology/Sociology

Capozza, Joseph, A.D., Springfield Technical Community College; B.S.B.A., Western New England College; M.B.A., Western New England College; Director of Special Projects

Carberry, Gail, Cert., Springfield Technical Community College; B.S.Ed., State College at Worcester; M.Ed., University of Massachusetts; Assistant Dean for Development

Carey, Walter H., B.S., University of Massachusetts; M.S., University of Massachusetts; Ph.D., University of Massachusetts, Biological Science

Carpenter, Deborah, B.A., American International College; M.S., American International College; Counselor for Special Programs

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Course descriptions are listed on pages 157 - 254 in alphabetical order by department (Automotive Technology through Telecommunications Technology.) The indexes on the following pages will assist you in locating a specific course description.

Index of Department Codes

Each course number begins with the 2-letter prefix which is the department code. This index lists the department codes in alphabetical order.

Index of Course Subjects

If you know you are looking for a course in a specific department, such as Graphic Arts Technology, you may use this index to find that the department code for Graphic Arts is GA, and that course descriptions for that department begin on page 203.

Index of Department Codes

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AA	Medical Assistant
AC	Cosmetology
AD	Dental Assistant
AH	Dental Hygiene
AL	Medical Laboratory Technician
AM	Human Services Associate: Generalist Option
AM	Human Services Associate: Gerontology Option
AN	Nursing
AO	Surgical Technology
AP	Physical Therapist Assistant
AR	Respiratory Care
AX	Radiography
AY	Radiation Therapy Technology
AZ	Nuclear Medicine Technology
BA	Accounting
BC	Court Reporting
BD	Computer Information Systems/Data Processing
BE	Executive Office Administration
BF	Finance
BH	Data Entry/Word Processing
BI	Marketing
BK	Management
BL	Legal Office Administration
BM	Medical Office Administration
BO	Clerical Office Assistant
BP	General Business
BW	Word Processing Management
EB	Bio-Medical Instrumentation Technology
ED	Computer Maintenance Technology
EE	Electrical Technology, Robotics Technology
EL	Laser Electro-Optics Technology
ET	Electronic Technology
ET	Microprocessing Technology Option

FA	Metal Machining Option to Mechanical Technology
FB	Mechanical Technology
GA	Graphic Arts Technology
GC	Civil Engineering Technology
GD	Drafting Technology
GL	Landscape/Plant Science Technology
GT	Telecommunications Technology
HE	Environmental Technology
HP	Heat/Power/Air Conditioning Technology
IA	Automotive Technology
LD	Developmental English
LE	English
LF	Foreign Languages
LM	Music
LS	General Studies
LT	Fine Arts
LX	Philosophy
MB	Biological Sciences
MC	Chemistry
ME	Engineering Sciences
ME	Computer Science Transfer
MM	Mathematics
MP	Physics
NC	Early Childhood Education
ND	Student Development
NE	Economics
NH	History
NI	Political Science
NL	Law Enforcement/Criminal Justice
NP	Psychology
NS	Sociology/Anthropology

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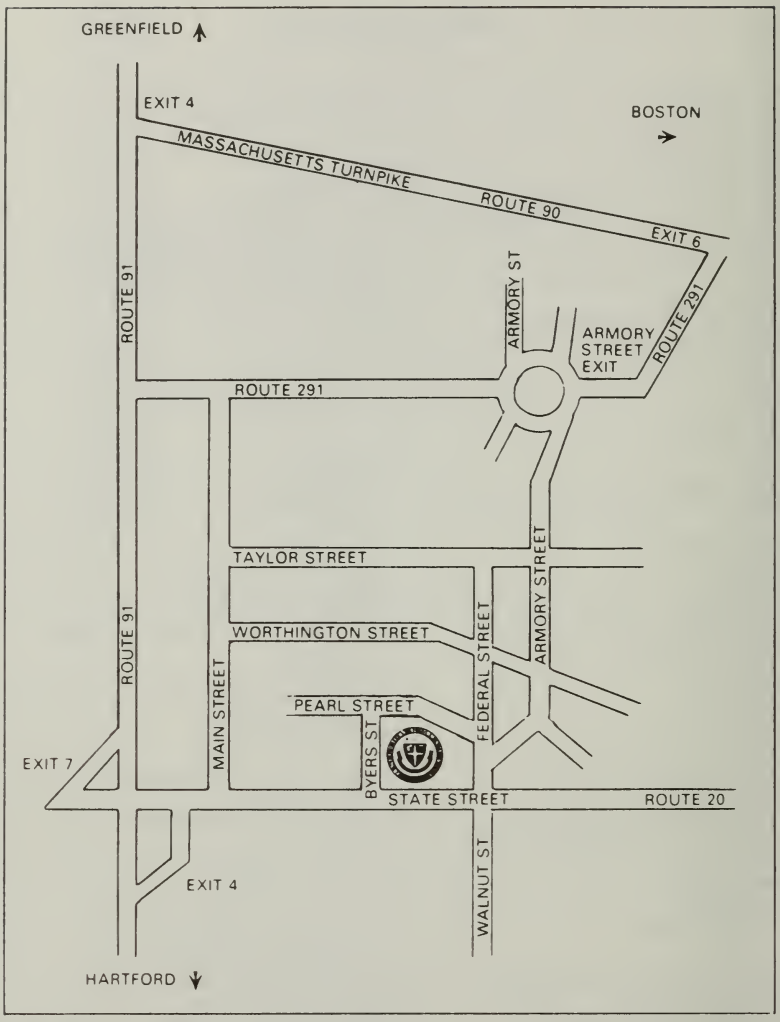


From 91 going South:

Follow Hartford signs to Exit 7, Springfield Center, exit right. Go straight through lights. At second light, turn left under highway, onto State Street.
Take State to Federal Street.

From 91 going North:

Take Exit 4, Broad Street.
Follow East Columbus Ave. to 3rd light, turn right on State Street.
Take State to Federal Street.

From Turnpike:

Take Exit 6.
Turn left onto Rt. 291.
Take Armory Street Exit. Go around rotary and take Armory Street going South.
Stay on Armory Street until you come to Federal Street.

Campus security officers will direct you to appropriate parking area.

Campus Map

1 Commandant's Home, under jurisdiction of National Park Service

2 **ANTHONY M. SCIBELLI HALL**
Administrative Computer Center
Athletics
Biological Sciences
Business Administration
Computer Information Systems/Data ssing Processing
Conference Center
Exercise Room
Fast Food Service
Gallery Players
Greenhouse
Gymnasium
Office Administration
Student Computer Labs
Telecommunications Technology
Theatre

8 Student Activities
Student Government Association

5, 6, 10, 11 Under Jurisdiction of STCC

12 Pottery Studio

13 **HUMANITIES BUILDING**
Developmental English
Early Childhood Education
English
Environmental Technology
Music

14 Graphic Arts Technology

15 **GARVEY HALL SOUTH**
Student Services Center
Cashier
Financial Aid
Registrar
Veterans' Affairs
Division of Community Services
Division of Continuing Education
Drafting Technology
General Studies
Pioneer Valley Area Health Education Center

16 **GARVEY HALL**
Academic Affairs
Administrative Services
Admissions
Business Office
College Health Service
Cooperative Education/Career Placement
Counseling Center
Dean of Student Services
President
REACH Program
Radio Station WTCC
Special Student Services
University Without Walls
Vending Food Area

17 **PUTNAM HALL**
Chemistry
Civil Engineering Technology
Computer Maintenance Technology
Computer Science Transfer
Economics
Electronic Technology
Engineering and Science Transfer
History
Individualized Learning Center
Landscape/Plant Science Technology
Laser Electro-Optics Technology
Law Enforcement/Criminal Justice
Liberal Arts Transfer
Mathematics
Microprocessing Technology
Physics
Political Science
Psychology
Ram Office
Sociology and Anthropology

19 Weight Room

20 **ALLIED HEALTH BUILDING**
Armory Square Day Care
Cafeteria
Bio-Medical Instrumentation
Cosmetology
Court Reporting
Dental Assistant
Dental Hygiene
Electrical Technology
Health Career Opportunity Program
Human Services Associate
Medical Assistant
Medical Laboratory Technician
Nuclear Medicine Technology
Nursing
Physical Therapist Assistant
Radiation Therapy
Radiography
Respiratory Therapy
Robotics Technology
Surgical Technology
Women's Center

21 Plant Growth Room

25 Automotive Technology

27 Art Gallery
Bookstore
Library
Storekeeper and Maintenance Shops

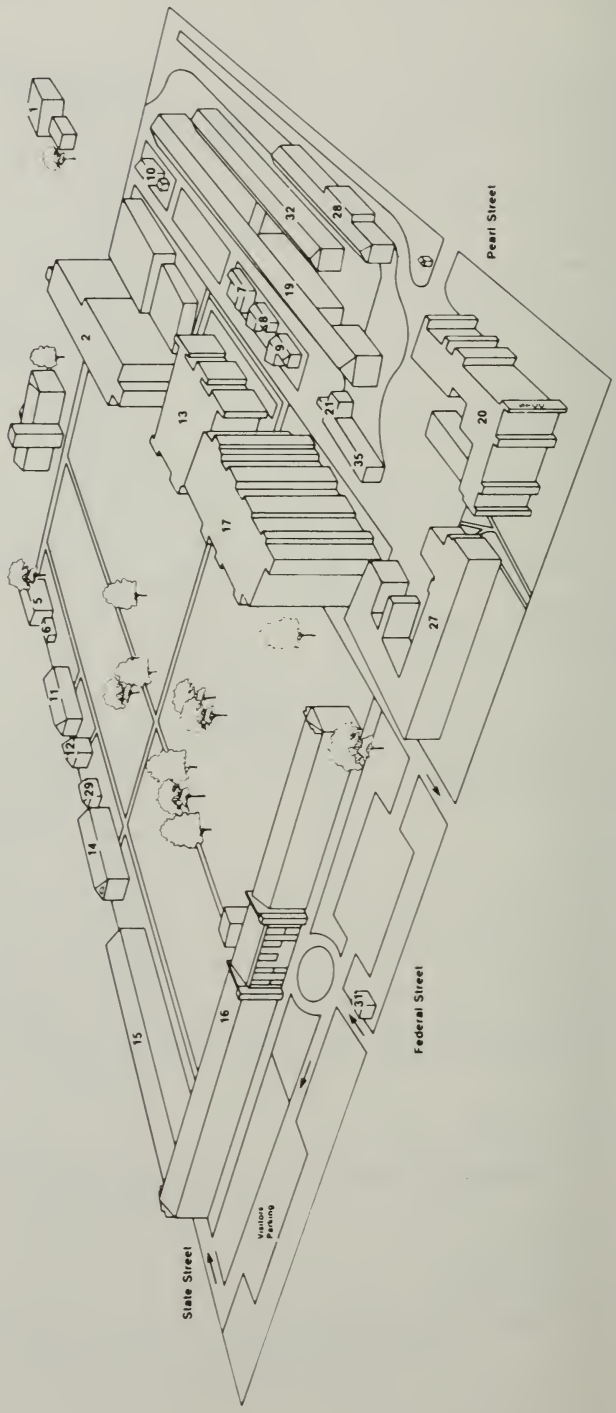
28 Art
Mechanical Technology

31 Gatehouse

32 Heat/Power/Air Conditioning Technology

35 Civil Engineering Lab
Plant Science Lab

Map Legend
Facilities



SPRINGFIELD
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